

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.11.97  
Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump  
Pump designation : PES4P110B720RS3383  
EP type number : 0 412 014 701

Governor  
Governor design. : RSV300...1100P1A667  
Governor no. : 0 421 833 582

Cust. part No. : 9880216

## Customer-spec. information

Customer : LIEBHERR  
Motor : D 924 TI-E A2  
Power KW : 149.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 207.0  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

AC1

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 4-2-1-3

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 4

## BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 203.0

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Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

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Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.5

---

Spread

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

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Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

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Rated speed rpm : 500

Rack travel in mm : 4.60  
 Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 24.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.5

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

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GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : ± 0.20

governor spring  
 pre-tension  
 click setting x : 4.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880

Aneroid pressure  
 hPa : 1500

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 203.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.5

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

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CONTROL LEVER

control lever  
 position degree : 99.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.85  
 Rated speed rpm : 920  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 980  
 Tolerance 1/min : ± 15

rack travel mm : 0.85  
 Tolerance mm : ± 0.55  
 Rated speed rpm : 1200

rack travel mm : 4.00  
 Rated speed rpm : 1000  
 Tolerance 1/min : ± 15

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LOW IDLE

control lever  
 position degree : 80.0  
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 500  
 rack travel mm : 2.80  
 Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 500  
 rack travel mm : 4.60  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : + 50

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#### TORQUE CONTROL

Rated speed rpm : 880  
rack travel mm : 13.85  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 13.90  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 13.90  
Tolerance mm : + 0.10

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 1500  
rack travel mm : 13.85  
Tolerance mm : + 0.10

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 11.25  
Tolerance mm : + 0.20

##### MEASUREMENT

Rated speed rpm : 550  
Pressure hPa : 830  
rack travel mm : 13.20  
Tolerance mm : + 0.05

Pressure hPa : 750  
rack travel mm : 12.10  
Tolerance mm : + 0.20

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

A03

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

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#### Aneroid pressure

hPa : 1500  
Rated speed rpm : 700  
rack travel mm : 13.90  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 214.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

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#### Aneroid pressure

hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

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#### LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 4.60  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
ca3/1000s. : 7.5

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 617  
  
Injection pump  
Pump designation : PE6P130A320RS7282  
EP type number : 0 412 636 825  
  
Governor  
Governor design. : RQV300...900PA1059  
Governor no. : 0 421 814 049

Cust. part No. : 865851-P08 V.09.97

Customer-spec. information  
Customer : PENTA  
Motor : TAD 1230 P

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Vibration damper  
(RoBo diaphragm) : 4.2  
  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 077  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder assembly : 1 688 901 105  
  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
  
Rack travel in mm : 8.30  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75  
  
Start of delivery mark  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.55  
 Tolerance mm : ± 0.05

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Del. quantity  
 cm<sup>3</sup>/1000 strokes : 349.0

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Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.5

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Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.0

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Speed

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Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

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Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

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Rated speed rpm : 300

Rack travel in mm : 4.00  
 Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 928  
 guide sleeve  
 travel mm : 7.72  
 Tolerance mm : ± 0.25

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.81  
 Tolerance mm : ± 0.25

Rated speed rpm : 650  
 guide sleeve  
 travel mm : 5.16  
 Tolerance mm : ± 0.25

Rated speed rpm : 315  
 guide sleeve  
 travel mm : 1.98  
 Tolerance mm : ± 0.25

Rated speed rpm : 365  
 guide sleeve  
 travel mm : 2.54  
 Tolerance mm : ± 0.25

Rated speed rpm : 420  
 guide sleeve  
 travel mm : 3.17  
 Tolerance mm : ± 0.25

Rated speed rpm : 1210  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 980

Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
 Aneroid pressure  
 hPa : 2000

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 349.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

CONTROL LEVER

control lever  
 position degree : 61.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 117.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 915  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1100

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

control lever  
position degree : 18.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm : + 0.10

rack travel mm : > 5.60  
Rated speed rpm : 200

Rated speed rpm : 365

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TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.55  
Tolerance mm : + 0.05

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ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 11.55  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -

A07

rack travel mm : 8.30  
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1420  
rack travel mm : 3.00  
Tolerance mm : + 0.20

Pressure hPa : 640  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.11.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 700  
  
Injection pump  
Pump designation : PE6P120A320LS7917  
EP type number : 0 412 626 972  
  
Governor  
Governor design. : RQV350...1050PA1366  
Governor no. : 0 421 814 204

Cust. part No. : 0270744002

Customer spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 2.0  
Tolerance bar : + 0.1  
  
Overflow quantity  
min. L/h : 120  
Tolerance L/h : + 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.9  
Tolerance bar : + 1.0  
  
Prestroke mm : 5.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : + 0.50  
  
Firing order : 6- 3- 5- 2- 4-  
: 1  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Start of delivery mark  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050



Rack travel in mm : 14.40  
 Tolerance mm : ± 0.05

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Del. quantity  
 cm<sup>3</sup>/1000 strokes : 218.0

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Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0

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Spread

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.80  
 Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106  
 guide sleeve  
 travel mm : 8.02  
 Tolerance mm : ± 0.15

Rated speed rpm : 350  
 guide sleeve  
 travel mm : 1.48  
 Tolerance mm : ± 0.20

Rated speed rpm : 900  
 guide sleeve  
 travel mm : 5.69  
 Tolerance mm : ± 0.25

Rated speed rpm : 570  
 guide sleeve  
 travel mm : 3.57  
 Tolerance mm : ± 0.25

Rated speed rpm : 1204  
 guide sleeve  
 travel mm : 10.00  
 Tolerance mm : ± 0.25

Rated speed rpm : 1300  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1160

Rack travel in mm : 13.40  
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
 Aneroid pressure  
 hPa : 1000

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 218.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 119.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.40  
 Rated speed rpm : 1095  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1185

Tolerance 1/min : ± 15  
rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. : > 7.90

Testing:

Rated speed rpm : 350  
rack travel mm : 5.80  
Tolerance mm : ± 0.10

Rated speed rpm : 390

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.40  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 14.80  
Tolerance mm : ± 0.05

Rated speed rpm : 970  
rack travel mm : 14.60  
Tolerance mm : ± 0.05

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ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 300  
rack travel mm : 0.75  
Tolerance mm : ± 0.05

Pressure hPa : 650  
rack travel mm : 3.35  
Tolerance mm : ± 0.20

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

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FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 14.60  
Tolerance mm : ± 0.05

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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REDUCED QUANTITY

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050

Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

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#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.11.97  
Test oil : ISO 4113

Combination No. : 0 402 646 785

Injection pump  
Pump designation : PE6P120A320LS7869  
EP type number : 0 412 626 887

Governor  
Governor design. : RQV300...1050PA1078K  
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer spec. information  
Customer : LIEBHERR  
Motor : D 9406 TI  
Power kW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm : + 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : + 0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm : + 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm : + 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm : + 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm : + 0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.30  
Rated speed rpm : 1110  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

Tolerance 1/min : ± 15

---

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : ± 0.10

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.30  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 11.65  
Tolerance mm : ± 0.10

Rated speed rpm : 950  
rack travel mm : 12.25  
Tolerance mm : ± 0.10

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050  
Pressure hPa : 1550  
rack travel mm : 12.30  
Tolerance mm : ± 0.05

Rated speed rpm : 1050  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1050  
Pressure hPa : 670  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

Pressure hPa : 600  
rack travel mm : 10.50  
Tolerance mm : ± 0.20

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 240

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 800  
rack travel mm : 11.65  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 302.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 20.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.11.97  
Test oil : ISO 4113  
Combination No. : 0 402 646 785A  
Injection pump  
Pump designation : PE6P120A320LS7869  
EP type number : 0 412 626 887  
Governor  
Governor design. : RQV300...1050PA1078K  
Governor no. : 0 421 815 359  
Cust. part No. : 9275445

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9406 TI  
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Overflow quantity min. l/h : 165  
Tolerance l/h : ± 20.0  
Test nozzle holder assembly : 1 688 901 105  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 6- 3- 5- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 12.30  
Tolerance mm : ± 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm : + 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : + 0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm : + 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm : + 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm : + 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm : + 0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 11.00  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.00  
Rated speed rpm : 1105  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

Tolerance 1/min : ± 15

---

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : ± 0.10

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.30  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 11.65  
Tolerance mm : ± 0.10

Rated speed rpm : 950  
rack travel mm : 12.25  
Tolerance mm : ± 0.10

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050  
Pressure hPa : 1550  
rack travel mm : 12.30  
Tolerance mm : ± 0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1050  
Pressure hPa : 670  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

Pressure hPa : 600  
rack travel mm : 10.50  
Tolerance mm : ± 0.20

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 240

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 800  
rack travel mm : 11.65  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 302.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 20.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.11.97  
Test oil : ISO 4113  
Combination No. : 0 402 648 702  
Injection pump  
Pump designation : PE8P120A320LS7915  
EP type number : 0 412 628 929  
Governor  
Governor design. : RQV250...1150PA1346  
Governor no. : 0 421 814 193

Cust. part No. :

## Customer-spec. information

Customer : DHI  
Motor : DV15T  
Power kW : 272.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 125  
Tolerance L/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

A20

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 16.00  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

Rated speed rpm : 250

Rack travel in mm : 5.60  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1207  
guide sleeve  
travel mm : 8.92  
Tolerance mm : ± 0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.31  
Tolerance mm : ± 0.20

Rated speed rpm : 1185  
guide sleeve  
travel mm : 8.60  
Tolerance mm : ± 0.25

Rated speed rpm : 640

guide sleeve  
travel mm : 4.65  
Tolerance mm : ± 0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1227

Rack travel in mm : 12.80  
Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

CONTROL LEVER

control lever  
position degree : 58.0  
tolerance degree : ± 4.0

control lever  
position degree : 122.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1295  
Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50  
Rated speed rpm : 1400

---

LOW IDLE

control lever  
position degree : 85.0  
tolerance degree : ± 4.0

control lever  
position degree : 21.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. : > 7.30

Testing:

Rated speed rpm : 250  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

Rated speed rpm : 300

---

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.80  
Tolerance mm : ± 0.05

Rated speed rpm : 650  
rack travel mm : 13.80  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.80  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.10  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 350  
rack travel mm : 10.00  
Tolerance mm : ± 0.20

Pressure hPa : 735  
rack travel mm : 12.10  
Tolerance mm : ± 0.05

---

Start interlock

Rated speed rpm : > 165  
Rated speed rpm : < 190

Check  
speed 1/min : > 155  
Check  
speed 1/min : < 210

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 241.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.10.97  
Test oil : ISO 4113  
Combination No. : 0 402 648 919  
Injection pump  
Pump designation : PE6P120A320LS7843  
EP type number : 0 412 628 859  
Governor  
Governor design. : RGV350...1050PA842  
: -8  
Governor no. : 0 421 813 952  
Cust. part No. : 022 074 0102

Customer spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power kW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067  
Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8-7-2-6-3  
: -5-4-1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 600



Rack travel in mm : 14.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.80  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1270  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.00  
Tolerance mm : + 0.20

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.85  
Tolerance mm : + 0.25

A25

Rated speed rpm : 1100  
guide sleeve  
travel mm : 8.10  
Tolerance mm : + 0.30

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1125

Rack travel in mm : 17.25  
Tolerance mm : + 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.50  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1175  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. : > 7.40

Testing:

Rated speed rpm : 350  
rack travel mm : 5.80  
Tolerance mm : ± 0.30

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 14.60  
Tolerance mm : ± 0.10

Rated speed rpm : 1050  
rack travel mm : 14.60  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 14.90  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1250  
rack travel mm : 0.20  
Tolerance mm : ± 0.10

2-stage LDA setting

Rated speed rpm : 600  
Pressure hPa : 1000

MEASUREMENT

Rated speed rpm : 600  
Pressure hPa : 400  
rack travel mm : -3.50  
Tolerance mm : ± 0.10

Pressure hPa : 550

rack travel mm : -2.20  
Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 800  
rack travel mm : 14.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 20.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.80  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.07.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 920  
  
Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860  
  
Governor  
Governor design. : RQV350...1050PA870  
                  : -16  
Governor no. : 0 421 813 953  
  
Cust. part No. : 022 074 0202

Customer-spec. information

Customer : MB-NFZ  
Motor : OM442 LA  
Power kW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : + 0.1  
  
Overflow quantity  
min. l/h : 110  
Tolerance l/h : + 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

A28

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 2.5  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 5.05  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : + 0.50  
  
Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1  
  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Start of delivery mark  
  
Barrel no. : 8

CRT ZERO POSITION

Rack travel in mm : 14.30  
Tolerance mm : + 0.10

BASIC SETTING

Rated speed rpm : 600

---

Rack travel in mm : 14.30  
Tolerance mm : + 0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 258.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108  
guide sleeve  
travel mm : 8.05  
Tolerance mm : + 0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.55  
Tolerance mm : + 0.25

Rated speed rpm : 570  
guide sleeve  
travel mm : 3.55

EO1

Tolerance mm : + 0.25

Rated speed rpm : 900  
guide sleeve  
travel mm : 5.65  
Tolerance mm : + 0.25

Rated speed rpm : 1204  
guide sleeve  
travel mm : 10.05  
Tolerance mm : + 0.25

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1125

Rack travel in mm : 17.25  
Tolerance mm : + 0.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 258.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 14.30  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50

Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 6.60

Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm : ± 0.10

Rated speed rpm : 450

---

TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 14.30  
Tolerance mm : ± 0.10

Rated speed rpm : 1050  
rack travel mm : 15.30  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 15.30  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600  
Pressure hPa : 1100

MEASUREMENT

Pressure hPa : 290  
rack travel mm : -5.50  
Tolerance mm : ± 0.05

Pressure hPa : 780  
rack travel mm : -1.30  
Tolerance mm : ± 0.10

B02

Pressure hPa : 1300  
rack travel mm : 0.45  
Tolerance mm : ± 0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

---

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 800  
rack travel mm : 15.30  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

REDUCED QUANTITY

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 1050

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.11.97  
Test oil : ISO 4113  
Combination No. : 0 402 676 840  
Injection pump  
Pump designation : PE6P120A320LS7918  
EP type number : 0 412 626 971  
Governor  
Governor design. : RSV550...1050PCA685  
Governor no. : 0 421 833 608  
Cust. part No. : 0270744202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 441 LA  
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Tolerance bar : + 0.1  
Overflow quantity  
min. l/h : 150  
Tolerance l/h : + 20.0  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

B04

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 5.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 20.50  
Tolerance mm : + 0.50  
Firing order : 6- 3- 5- 2- 4-  
: 1  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Start of delivery mark  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.75  
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030  
Rack travel in mm : 14.50  
Tolerance mm : + 0.05



<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	227.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.0
<hr/>	
Spread	
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	9.0
<hr/>	

Rated speed rpm :	550
<hr/>	
Rack travel in mm :	4.30
Tolerance mm :	+ 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes :	19.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 3.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 6.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes :	6.0
Check tolerance	
cm <sup>3</sup> /1000S. :	10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
<hr/>	
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
<hr/>	
governor spring	
pre-tension	
click setting x :	2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1030
-------------------	------

B05

Aneroid pressure	
hPa :	-
Del. quantity	
cm <sup>3</sup> /1000 strokes :	227.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
Check tolerance	
cm <sup>3</sup> /1000S. :	9.0

---

CONTROL LEVER

control lever	
position degree :	80.0
tolerance degree :	+ 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	1070
rack travel mm :	13.50
<hr/>	
Rated speed rpm :	1122
Tolerance 1/min :	+ 4
rack travel mm :	4.00
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1300

Rated speed rpm :	1071
rack travel mm :	13.50

Rated speed rpm :	1123
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1300

Rated speed rpm :	1072
rack travel mm :	13.50

Rated speed rpm :	1124
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1300

Rated speed rpm : 1073  
rack travel mm : 13.50

Rated speed rpm : 1125  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1074  
rack travel mm : 13.50

Rated speed rpm : 1126  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

rack travel mm : 13.50

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 550  
rack travel mm : 4.30  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 565  
Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

B06

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 14.50  
Tolerance mm : + 0.05

Rated speed rpm : 960  
rack travel mm : 14.70  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 15.30  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 15.20  
Tolerance mm : + 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.95  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 650  
rack travel mm : 13.85  
Tolerance mm : + 0.20

Pressure hPa : 450  
rack travel mm : 11.75  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
rack travel mm : 15.30  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 4.30  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.11.97  
Test oil : ISO 4113

Combination No. : 0 402 738 800

Injection pump  
Pump designation : PE8P130A720/3LS7443  
EP type number : 0 412 738 801

Governor  
Governor design. : RQV350...900PA1359  
Governor no. : 0 421 814 202

Cust. part No. :

Customer-spec. information  
Customer : FINCANTIERI  
Motor : V1708T2-SPE  
Power KW : 815.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1-2-6-3-4-5-7-8

Phasing : 0-45-90-135-180-225  
Tolerance : ± 270-315  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 420.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 10.5  


---

  
 Rated speed rpm : 350  
  
 Rack travel in mm : 4.20  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 25.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 7.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 9.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 13.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958  
 guide sleeve  
 travel mm : 3.29  
 Tolerance mm : + 0.15  
  
 Rated speed rpm : 350  
 guide sleeve  
 travel mm : 2.31  
 Tolerance mm : + 0.20  
  
 Rated speed rpm : 690  
 guide sleeve  
 travel mm : 5.08  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1160  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1011  
  
 Rack travel in mm : 13.80

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
 Aneroid pressure  
 hPa : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 420.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 10.5

CONTROL LEVER

control lever  
 position degree : 115.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.80  
 Rated speed rpm : 945  
 Tolerance 1/min : + 5  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1065  
 Tolerance 1/min : + 15  
  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1150

LOW IDLE

control lever  
 position degree : 67.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
  
 CRT mm min. : > 6.00

Testing:

Rated speed rpm : 350

rack travel mm : 4.20  
Tolerance mm : ± 0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 490  
Tolerance 1/min : ± 30  
  
Rated speed rpm : 415

---

TORQUE CONTROL  
Rated speed rpm : 900  
rack travel mm : 14.80  
Tolerance mm : ± 0.05  
  
Rated speed rpm : 500  
rack travel mm : 14.85  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 900  
rack travel mm : 14.80  
Tolerance mm : ± 0.05  
  
Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 600  
  
Pressure hPa : 250  
rack travel mm : 10.80  
Tolerance mm : ± 0.20  
  
Pressure hPa : 320  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.5

---

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 7.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 9.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.97  
Test oil : ISO 4113

Combination No. : 0 402 746 636

Injection pump  
Pump designation : PES6P120A720RS7445  
EP type number : 0 412 726 973

Governor  
Governor design. : RQ300/1100PA1360  
Governor no. : 0 421 801 824

Cust. part No. : 618.00.08.0048

## Customer spec. information

Customer : SNF  
Motor : WD618.42  
Power kW : 310.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 155  
Tolerance L/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.00  
Tolerance mm : ± 0.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 8.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1158  
guide sleeve  
travel mm : 6.35  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.74  
Tolerance mm : + 0.20

Rated speed rpm : 1100  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 425  
guide sleeve  
travel mm : 5.00

Tolerance mm : + 0.10

Rated speed rpm : 500  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 13.80  
Rated speed rpm : 1153  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70



Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 10.00

Testing:

Rated speed rpm : 300  
rack travel mm : 8.20  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min : + 20

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.80  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 14.85  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.80  
Tolerance mm : + 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.90  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 700

rack travel mm : 14.10  
Tolerance mm : + 0.05

Pressure hPa : 375  
rack travel mm : 12.40  
Tolerance mm : + 0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.90  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 8.20  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.11.97  
Test oil : ISO 4113

Combination No. : 0 402 746 637

Injection pump  
Pump designation : PES6P120A32ORS7449  
EP type number : 0 412 726 974

Governor  
Governor design. : RQ275/1050PA1372  
Governor no. : 0 421 801 830

Cust. part No. :

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : M17R062045 B41  
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 320  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.25  
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

\*NW after s.o.d. : -1.45  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.50  
Tolerance mm : ± 0.05

---

BASIC SETTING

Rated speed rpm : 600

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -6.80  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure  
hPa : 1000

B16

Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1120

Tolerance 1/min : ± 5

rack travel mm : -12.00

Tolerance mm : ± 0.50

Rated speed rpm : 1350

---

LOW IDLE

Testing:

Rated speed rpm : 275

rack travel mm : -6.80

Tolerance mm : ± 0.10

---

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050

Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1000

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : -2.00

Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320

rack travel mm : -0.85  
Tolerance mm : + 0.15  
  
Pressure hPa : 160  
rack travel mm : -1.70  
Tolerance mm : + 0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 195  
  
Check speed 1/min : > 80  
Check speed 1/min : < 215

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : -6.80  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.11.97  
Test oil : ISO 4113

Combination No. : 0 402 746 638

Injection pump  
Pump designation : PES6P120A320RS7449  
EP type number : 0 412 726 974

Governor  
Governor design. : RQ275/1050PA1373  
Governor no. : 0 421 801 831

Cust. part No. :

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MI7R062045 C41  
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : + 0.1

Overflow quantity min. l/h : 220  
Tolerance l/h : + 10.0

Test nozzle holde assembly : 1 688 901 101

Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.70  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 20.25  
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -0.95  
Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70  
Tolerance mm : + 0.05

---

BASIC SETTING

Rated speed rpm : 1050

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -6.10  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

B19

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1115

Tolerance 1/min : + 5

rack travel mm : -11.20

Tolerance mm : + 0.50

Rated speed rpm : 1350

---

LOW IDLE

Testing:

Rated speed rpm : 275

rack travel mm : -6.10

Tolerance mm : + 0.10

---

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600

rack travel mm : 0.80

Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1000

rack travel mm : 1.00

Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : -1.00

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 280  
rack travel mm : 0.65  
Tolerance mm : ± 0.15  
Pressure hPa : 160  
rack travel mm : -0.15  
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 195  
Check speed 1/min : > 80  
Check speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000  
Rated speed rpm : 600  
Del. quantity cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure hPa : -  
Rated speed rpm : 500  
Del. quantity cm<sup>3</sup>/1000 strokes : 149.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : -6.10  
Tolerance mm : ± 0.10  
Del. quantity cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 5.0  
Spreed Tolerance cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.11.97  
Test oil : ISO 4113  
Combination No. : 0 402 746 639  
Injection pump  
Pump designation : PES6P120A32ORS7359  
: -3  
EP type number : 0 412 726 975  
Governor  
Governor design. : RQ275/105GPA1217-2  
Governor no. : 0 421 801 832  
Cust. part No. : CCEP 5172 66-255

---

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR062045 J41  
Power KW : 210.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 078  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 089

B21

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.80  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 20.25  
Tolerance mm : + 0.75  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Start of delivery mark  
°NW after s.o.d. : -0.45  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Barrel no. : 1

---

## CRT ZERO POSITION

Rack travel in mm : 13.40  
Tolerance mm : + 0.05

---

## BASIC SETTING

Rated speed rpm : 600

---

Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -6.90

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1115

Tolerance 1/min : ± 15

rack travel mm : -12.90

Tolerance mm : ± 0.50

Rated speed rpm : 1350

---

LOW IDLE

Testing:

Rated speed rpm : 275

rack travel mm : -6.90

Tolerance mm : ± 0.10

---

TORQUE CONTROL

Rated speed rpm : 600

Tolerance mm : ± 0.05

Rated speed rpm : 1050

Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1000

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : -2.85

Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 520

rack travel mm : -0.60

Tolerance mm : ± 0.15  
Pressure hPa : 240  
rack travel mm : -2.20  
Tolerance mm : ± 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 195  
  
Check speed 1/min : > 80  
Check speed 1/min : < 215

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 293.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 275

B23

Rack travel in mm : -6.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.11.97  
Test oil : ISO 4113

Combination No. : 0 402 746 957

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0 412 726 939

Governor  
Governor design. : RGV350...1150PA1074  
: -2K  
Governor no. : 0 421 815 367

Cust. part No. : 0250741002

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM366LA  
Power kW : 157.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

B24

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 3.30  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

---

Rack travel in mm : 14.10  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 6.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206  
guide sleeve  
travel mm : 9.35

Tolerance mm : + 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53

Tolerance mm : + 0.20

Rated speed rpm : 855

guide sleeve  
travel mm : 5.56  
Tolerance mm : + 0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.17  
Tolerance mm : + 0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1331

Rack travel in mm : 13.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 13.40  
Rated speed rpm : 1195  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1325  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : ± 0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 6.90

Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.10  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 13.95  
Tolerance mm : ± 0.10

Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.10  
Tolerance mm : ± 0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 10.10  
Tolerance mm : ± 0.15

##### MEASUREMENT

B26

Rated speed rpm : 1150

Pressure hPa : 400  
rack travel mm : 10.90  
Tolerance mm : ± 0.05

Pressure hPa : 850  
rack travel mm : 12.50  
Tolerance mm : ± 0.15

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 250

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.08.97  
Test oil : ISO 4113  
  
Combination No. : 0 403 444 150  
  
Injection pump  
Pump designation : PES4MW100/72ORS1212  
EP type number : 0 413 404 114  
  
Governor  
Governor design. : RQV300...1300MW50  
                  : -23  
Governor no. : 0 420 083 269  
  
Cust. part No. : 0250741602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 102.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1 680 750 089  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1-3-4-2  
  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300  
  
Rack travel in mm : 13.15  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
  
Spread  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5



Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 300  
Rack travel in mm : 6.40  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1350  
Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 12.10  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1465  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300  
rack travel mm : 6.40  
Tolerance mm : + 0.10

---

TORQUE CONTROL  
Rated speed rpm : 1300  
rack travel mm : 13.15  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 13.20  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.20

Tolerance mm : ± 0.10  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.90  
Tolerance mm : ± 0.10

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 400  
rack travel mm : 12.70  
Tolerance mm : ± 0.10

Pressure hPa : 200  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check speed 1/min : > 80  
Check speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 700  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.40  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.98  
Test oil : ISO 4113  
Combination No. : F 000 409 212  
Injection pump  
Pump designation : PES6A95D410RS2923  
EP type number : F 000 400 401  
Governor  
Governor design. : RQV300...1300AB1326L  
Governor no. : F 000 420 302

Cust. part No. : A 028 074 51 02

Customer-spec. information  
Customer : MBB  
Motor : OM 366LA/EuroI  
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 19.00  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 13.45  
Tolerance mm : ± 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 3.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 300

Rack travel in mm : 6.60

Tolerance mm : + 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 13.0

Tolerance

cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance

cm<sup>3</sup>/1000S. : + 4.5

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500

guide sleeve

travel mm : 9.70

Tolerance mm : + 0.05

Rated speed rpm : 300

guide sleeve

travel mm : 1.30

Tolerance mm : + 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 2.90

Tolerance mm : + 0.25

Rated speed rpm : 750

guide sleeve

travel mm : 4.80

Tolerance mm : + 0.10

---

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1366

Rack travel in mm : 16.50

CO4

Tolerance mm : + 1.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 900

Del. quantity

cm<sup>3</sup>/1000 strokes : 97.0

Tolerance

cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance

cm<sup>3</sup>/1000S. : + 3.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever

position degree : 113.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.50

Rated speed rpm : 1345

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1520

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1640

---

LOW IDLE

control lever

position degree : 73.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 300

rack travel mm : 6.60  
Tolerance mm : ± 0.10

Rated speed rpm : 355

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 13.50  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 270  
rack travel mm : 0.80  
Tolerance mm : ± 0.10

Pressure hPa : 510  
rack travel mm : 2.40  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 210

Check speed 1/min : > 80

Check speed 1/min : < 230

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

C05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.20

Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.60  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.98  
Test oil : ISO 4113  
Combination No. : F 000 409 888  
Injection pump  
Pump designation : PES5P120A  
EP type number : 0  
Governor  
Governor design. : RQV300...950  
Governor no. : 0  
Cust. part No. :

Customer spec. information  
Customer : MBB

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.3  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

C06

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.70  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 21.00  
Firing order : 1- 3- 5- 4- 2  
Phasing : 0-72-144-216-288  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 950  
Rack travel in mm : 13.55  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300  
 Rack travel in mm : 6.40  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 22.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700  
 guide sleeve  
 travel mm : 5.45  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1050  
 guide sleeve  
 travel mm : 7.80  
 Tolerance mm : + 0.10  
 Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.75  
 Tolerance mm : + 0.25  
 Rated speed rpm : 500  
 guide sleeve  
 travel mm : 3.55  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1165  
 guide sleeve  
 travel mm : 9.45  
 Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1120  
 Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

C07

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
 Aneroid pressure  
 hPa : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 271.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 121.0  
 tolerance degree : + 6.0

RATED SPEED

rack travel mm : 12.55  
 Rated speed rpm : 1040  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1145  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1250

LOW IDLE

control lever  
 position degree : 79.0  
 tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 100  
 CRT mm min. : > 10.00  
 Testing:  
 Rated speed rpm : 300  
 rack travel mm : 6.40

Tolerance mm : ± 0.10

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.55  
Tolerance mm : ± 0.05

Rated speed rpm : 550  
rack travel mm : 13.95  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.95  
Tolerance mm : ± 0.05

Rated speed rpm : 850  
rack travel mm : 13.90  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 500  
rack travel mm : 1.10  
Tolerance mm : ± 0.15

Pressure hPa : 900  
rack travel mm : 2.65  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 210

Check speed 1/min : > 80  
Check speed 1/min : < 230

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 302.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 13.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 294.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 286.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0



Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.40  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 863 020  
Injection pump  
Pump designation : PES3A95D410/3RS2905  
EP type number : 0 410 893 996  
Governor  
Governor design. : RSV325...1250A5C858L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1592 KY

Customer spec. information  
Customer : KHD-DMI  
Motor : F3L912/913\_NEU  
Power kW : 40.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity cm<sup>3</sup>/1000 strokes : 76.0

Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : FREE  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 4.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 76.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
 position degree : 107.0  
 tolerance degree : + 4.0

RATED SPEED  
 rack travel mm : 10.35  
 Rated speed rpm : 1295  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1355  
 Tolerance 1/min : + 15

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1530

rack travel mm : 4.00  
 Rated speed rpm : 1380  
 Tolerance 1/min : + 15

---

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 8.00  
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325  
 rack travel mm : 8.50  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 510  
 Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 863 021  
Injection pump  
Pump designation : PES3A95D410/3RS2905  
EP type number : 0 410 893 996  
Governor  
Governor design. : RSV325...900A1C859L  
Governor no. : 0 420 232 622

Cust. part No. : 0423 1593 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F3L912/913\_NEU  
Power KW : 40.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 3.00  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80  
Tolerance mm : + 0.05

Del. quantity cm<sup>3</sup>/1000 strokes : 80.0

Tolerance cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance cm<sup>3</sup>/1000S. : + 3.0

Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 7.90  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : FREE  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 4.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 80.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
 position degree : 96.0  
 tolerance degree : + 4.0

RATED SPEED  
 rack travel mm : 10.80  
 Rated speed rpm : 895  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 940  
 Tolerance 1/min : + 10

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1110

rack travel mm : 4.00  
 Rated speed rpm : 960  
 Tolerance 1/min : + 15

---

LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 7.40  
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325  
 rack travel mm : 7.90  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 440  
 Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 7.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.08.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 863 024  
  
Injection pump  
Pump designation : PES3A95D410/3RS2905  
EP type number : 0 410 893 996  
  
Governor  
Governor design. : RSV325...125QA5C917L  
Governor no. : 0 420 232 639  
  
Cust. part No. : 0423 2328 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F3L912  
Power kW : 44.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 3.00  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
  
Firing order : 1- 3- 2  
  
Phasing : 0-120-240  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 11.35  
Tolerance mm : + 0.05  
  
Del. quantity  
cm3/1000 strokes : 76.0  
  
Tolerance  
cm3/1000 strokes : + 1.0  
  
Check tolerance  
cm3/1000S. : + 3.0  
  
Speed



Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.9

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : FREE  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 4.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 76.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
 position degree : 107.0  
 tolerance degree : + 4.0

RATED SPEED  
 rack travel mm : 10.35  
 Rated speed rpm : 1295  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1355  
 Tolerance 1/min : + 15

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1530

rack travel mm : 4.00  
 Rated speed rpm : 1380  
 Tolerance 1/min : + 15

---

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 8.00  
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325  
 rack travel mm : 8.50  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 510  
 Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.9

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 864 099  
Injection pump  
Pump designation : PES4A95D410/3RS2789  
EP type number : 0 410 894 995  
Governor  
Governor design. : RSV325...1250A5C858L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1595 KY

Customer spec. information  
Customer : KHD-DMI  
Motor : F4L912/913\_NEU  
Power KW : 54.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 11.35  
Tolerance mm : ± 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 3.0  
Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : FREE  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 4.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 76.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
 position degree : 107.0  
 tolerance degree : + 4.0

RATED SPEED  
 rack travel mm : 10.35  
 Rated speed rpm : 1295  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1355  
 Tolerance 1/min : + 15

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1530

rack travel mm : 4.00  
 Rated speed rpm : 1380  
 Tolerance 1/min : + 15

---

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 8.00  
 Tolerance mm : + 0.10

Rated speed rpm : 100  
 CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325  
 rack travel mm : 8.50  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 510  
 Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.03.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 864 102  
  
Injection pump  
Pump designation : PES4A95D410/3RS2789  
EP type number : 0 410 894 995  
  
Governor  
Governor design. : RSV325...1250A5C861L  
Governor no. : 0 420 232 624

Cust. part No. : 0423 1789 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F4L912/913\_NEU  
Power KW : 59.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1 680 750 014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 11.35  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
  
Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
 Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : FREE  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : ± 0.20

governor spring  
 pre-tension  
 click setting x : 3.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 76.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
 position degree : 102.0  
 tolerance degree : ± 4.0

RATED SPEED  
 rack travel mm : 10.35  
 Rated speed rpm : 1295  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1339  
 Tolerance 1/min : ± 15

rack travel mm : 0.85  
 Tolerance mm : ± 0.55  
 Rated speed rpm : 1510

rack travel mm : 4.00  
 Rated speed rpm : 1360  
 Tolerance 1/min : ± 15

---

LOW IDLE

control lever  
 position degree : 69.0  
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 8.00  
 Tolerance mm : ± 0.10

Rated speed rpm : 100  
 CRT min min. : > 19.50

Testing:

Rated speed rpm : 325  
 rack travel mm : 8.50  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 473  
 Tolerance 1/min : ± 30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 866 222  
Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884  
Governor  
Governor design. : RSV325...1250A5C950L  
Governor no. : 0 420 232 641

Cust. part No. : 0423 1601 KY

Customer spec. information  
Customer : KHD-DMI  
Motor : F6L912/913\_NEU  
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 11.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure

hPa : -  
Del. quantity

cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance

cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance

cm<sup>3</sup>/1000S. : + 3.0  
Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1400  
Tolerance 1/min : + 15

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.98  
Test oil : ISO 4113  
Combination No. : 0 400 866 225  
Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884  
Governor  
Governor design. : RSV325...1250A5C967L  
Governor no. : 0 420 232 647

Cust. part No. : 0423 1813 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F6L912/913\_NEU  
Power KW : 89.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 11.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.35  
Rated speed rpm : 1295

Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1340

Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1540

rack travel mm : 4.00  
Rated speed rpm : 1385

Tolerance 1/min : + 15

LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00

Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325  
rack travel mm : 8.50

Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 570

Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 866 230  
  
Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884  
  
Governor  
Governor design. : RSV325...1250A5C874L  
Governor no. : 0 420 232 629

Cust. part No. : 0423 2054 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : BF6L 913  
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 3.00  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 13.20  
Tolerance mm : + 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000s. : + 3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.20  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 104.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.20  
Rated speed rpm : 1295

Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1355

Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1400

Tolerance 1/min : +- 15

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 7.70

Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 325  
rack travel mm : 8.20

Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 560

Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.20



Tolerance mm : ± 0.05  
Rated speed rpm : 500  
rack travel mm : 13.25  
Tolerance mm : ± 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.01.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 033

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1050A0C911R  
Governor no. : F 002 A20 223

Cust. part No. : 3283692

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT-155 PS/2100

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : + 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

D06

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0

Prestroke mm : 2.85  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : + 0.10  
Check  
tolerance \*NW : + 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.20

Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 475

Rack travel in mm : 5.80  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.8  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1200

D07

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

CONTROL LEVER

control lever  
position degree : 105.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.20  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min : + 5

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Tolerance mm : + 0.05  
Rated speed rpm : 1185  
Tolerance 1/min : + 15

---

LOW IDLE

control lever  
position degree : 83.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 5.30  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.80  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min : ± 30

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.20  
Tolerance mm : ± 0.05

Rated speed rpm : 750

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 12.40  
Tolerance mm : ± 0.20

Pressure hPa : 550  
rack travel mm : 11.75  
Tolerance mm : ± 0.20

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : ± 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.8  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
Combination No. : 0 400 656 152  
Injection pump  
Pump designation : PE6A90D412RS2507  
EP type number : 0 410 696 178  
Governor  
Governor design. : RGV300...1400AB970DL  
Governor no. : 0 420 214 222

Cust. part No. :

Customer-spec. information  
Customer : SNF  
Motor : WD6103P  
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 8.55  
Tolerance mm : ± 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance cm<sup>3</sup>/1000S. : ± 2.5  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

Rated speed rpm : 300

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1565

Rack travel in mm : 7.50  
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 7.50

Rated speed rpm : 1445

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1495

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1600

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300

rack travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 8.55

Tolerance mm : ± 0.05

Rated speed rpm : 500

rack travel mm : 9.65

Tolerance mm : ± 0.05

Rated speed rpm : 905

rack travel mm : 9.30

Tolerance mm : ± 0.10

Rated speed rpm : 1060

rack travel mm : 8.80  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check speed 1/min : > 80  
Check speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.30  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

D11

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.98  
Test oil : ISO 4113  
Combination No. : 0 400 876 375  
Injection pump  
Pump designation : PES6A95D320RS2693  
EP type number : 0 410 896 914  
Governor  
Governor design. : RSV300...1300A0C2251  
: R  
Governor no. : 0 420 233 272  
Cust. part No. :

Customer-spec. information

Customer : DAF  
Motor : NT 116  
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 9.00  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery difference  
and maximum rack  
travel : 9.00  
Tolerance mm : ± 0.50  
Difference ° CS : 3.00

BASIC SETTING

Rated speed rpm : 1290  
Rack travel in mm : 10.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.0



Tolerance  
 cm<sup>3</sup>/1000 strokes : + 0.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : + 2.5

---

Spreed

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 300

Rack travel in mm : 5.90  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 62.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 2.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
 position degree : 108.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.30  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1405  
 Tolerance 1/min : + 15

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1575

rack travel mm : 4.00  
 Rated speed rpm : 1425  
 Tolerance 1/min : + 15

LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
 rack travel mm : 6.40  
 Tolerance mm : + 0.10

Testing:

Rated speed rpm : 300  
 rack travel mm : 5.90  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 590  
 Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1290  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 1290  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.01.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 736 842AA  
  
Injection pump  
Pump designation : PES6P120A120RS7281  
EP type number : 0 412 726 890  
  
Governor  
Governor design. : RQV400...1250PA1060  
                  : -1K  
Governor no. : 0 421 815 344

Cust. part No. : 3933296

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 093  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery blocking  
  
°NW after s.o.d. : 6.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 13.35

Tolerance mm : + 0.05  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 153.5  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  


---

 Speed  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0  


---

  
 Rated speed rpm : 420  
  
 Rack travel in mm : 6.00  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 15.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1313  
 guide sleeve  
 travel mm : 7.14  
 Tolerance mm : + 0.15  
  
 Rated speed rpm : 400  
 guide sleeve  
 travel mm : 0.91  
 Tolerance mm : + 0.20  
  
 Rated speed rpm : 936  
 guide sleeve  
 travel mm : 4.64  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 640

guide sleeve  
 travel mm : 3.04  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1740  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 153.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
 position degree : 120.0  
 tolerance degree : + 4.0  
  
 RATED SPEED  
 rack travel mm : 12.30  
 Rated speed rpm : 1325  
 Tolerance 1/min : + 15  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1475  
 Tolerance 1/min : + 5  
  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1550

LOW IDLE

control lever  
 position degree : 73.0  
 tolerance degree : + 4.0  
  
 Control lever difference  
 Grad : 47.0

tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : > 5.80

Testing:

Rated speed rpm : 420

rack travel mm : 6.00

Tolerance mm : ± 0.20

Rated speed rpm : 425

---

TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 13.35

Tolerance mm : ± 0.05

Rated speed rpm : 800

rack travel mm : 12.00

Tolerance mm : ± 0.20

Rated speed rpm : 500

rack travel mm : 11.60

Tolerance mm : ± 0.20

Rated speed rpm : 900

rack travel mm : 12.40

Tolerance mm : ± 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250

Pressure hPa : 1200

Rated speed rpm : 1250

Pressure hPa : -

rack travel mm : 9.15

Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 310

rack travel mm : 12.30

Tolerance mm : ± 0.30

Pressure hPa : 175

rack travel mm : 10.20

Tolerance mm : ± 0.20

---

Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 280

Check  
speed 1/min : > 80

Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : 800

Rated speed rpm : 800

Del. quantity

cm<sup>3</sup>/1000 strokes : 133.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 11.60

Tolerance mm : ± 0.20

---

Aneroid pressure

hPa : -

Rated speed rpm : 1250

Del. quantity

cm<sup>3</sup>/1000 strokes : 84.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 13.50

Tolerance mm : ± 0.50

Del. quantity

cm<sup>3</sup>/1000 strokes : 155.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 20.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 25.0

---

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.00  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : +- 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.01.98  
Test oil : ISO 4113  
Combination No. : 0 402 776 825  
Injection pump  
Pump designation : PES6P120A72ORS7382  
EP type number : 0 412 726 943  
Governor  
Governor design. : RSV400...1100POA547  
: -7  
Governor no. : 0 421 833 496  
Cust. part No. : RE501786

Customer-spec. information  
Customer : DEERE  
Motor : 6DE1 AF0C1  
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 079  
Inlet press. bar : 2.0  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

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x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Start of delivery mark  
\*NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1  
Beginning of delivery differende  
and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.80  
 Tolerance mm : + 0.05

---

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 198.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 400

Rack travel in mm : 5.85  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 28.5

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 1400

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 198.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 95.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.80  
 Rated speed rpm : 1170  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1225  
 Tolerance 1/min : + 5

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1300

rack travel mm : 4.00  
 Rated speed rpm : 1230  
 Tolerance 1/min : + 15

LOW IDLE

control lever  
 position degree : 72.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
 rack travel mm : 5.35  
 Tolerance mm : + 0.10



Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400  
rack travel mm : 5.85  
Tolerance mm : +- 0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.80  
Tolerance mm : +- 0.05

Rated speed rpm : 800  
rack travel mm : 12.40  
Tolerance mm : +- 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1400

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.75  
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 880  
rack travel mm : 11.50  
Tolerance mm : +- 0.20

Pressure hPa : 450  
rack travel mm : 9.70  
Tolerance mm : +- 0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 25.0

---

LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 5.85  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.01.98  
Test oil : ISO 4113

Combination No. : 0 403 466 181

Injection pump  
Pump designation : PES6MW100/120RS1238  
EP type number : 0 413 406 237

Governor  
Governor design. : RSV500...1000MWOA409  
Governor no. : 0 420 085 300

Cust. part No. : 3928288

Customer-spec. information  
Customer : CDC  
Motor : 6 CT  
Power kW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : +- 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : +- 1.0

Prestroke mm : 2.80  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : +- 0.50  
Check  
tolerance \*NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende  
and maximum rack  
travel : 15.00  
Difference \* CS : 2.00

---

**BASIC SETTING**

Rated speed rpm : 1000

---

Rack travel in mm : 11.75  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

**Spread**Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 500Rack travel in mm : 5.50  
Tolerance mm : + 0.10Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5**Spread**Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

**(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR**

---

**GUIDE SLEEVE POSITION**control lever  
position degree : - 3  
Rated speed rpm : 800Rack travel in mm : 0.50  
Tolerance mm : + 0.20

D23

governor spring  
pre-tension  
click setting x : 4.00

---

**FULL LOAD DELIVERY AT FULL LOAD STOP**Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.5Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0**Spread**Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

**CONTROL LEVER**control lever  
position degree : 100.0  
tolerance degree : + 4.0**RATED SPEED**rack travel mm : 10.70  
Rated speed rpm : 1055  
Tolerance 1/min : + 5rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min : + 5rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1250rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min : + 15

---

**LOW IDLE**control lever  
position degree : 83.0  
tolerance degree : + 4.0Control lever difference  
Grad : 17.0

tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 5.50  
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.75  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 13.10  
Tolerance mm : + 0.10

Rated speed rpm : 900  
rack travel mm : 12.45  
Tolerance mm : + 0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.70  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 930  
rack travel mm : 12.60  
Tolerance mm : + 0.20

Pressure hPa : 640  
rack travel mm : 11.40  
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

rack travel mm : 12.45  
Tolerance mm : + 0.20

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 13.0

LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 5.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.01.98  
Test oil : ISO 4113  
  
Combination No. : F 002 A0Z 061  
  
Injection pump  
Pump designation : PES4A950320/3RS2927  
EP type number : F 002 A10 017  
  
Governor  
Governor design. : RSV475...1100A2C941R  
Governor no. : F 002 A20 242  
  
Cust. part No. : 3930143

Customer-spec. information  
Customer : CDC  
Motor : 4BNA3.9  
Power kW : 54.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 093  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holde  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

D26

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75  
  
Start of delivery blocking  
  
\*NW after s.o.d. : 9.50  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 10.55  
Tolerance mm : ± 0.05

Rated speed rpm : 475  
 Rack travel in mm : 5.40  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 13.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800  
 Rack travel in mm : 0.50  
 Tolerance mm : + 0.20  
 governor spring  
 pre-tension  
 click setting x : 3.00

CONTROL LEVER

control lever  
 position degree : 100.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.50  
 Rated speed rpm : 1175  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1240  
 Tolerance 1/min : + 5

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1350

rack travel mm : 4.00  
 Rated speed rpm : 1250  
 Tolerance 1/min : + 15

LOW IDLE

control lever  
 position degree : 80.0  
 tolerance degree : + 4.0

Control lever difference

Grad : 20.0  
 tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 475  
 rack travel mm : 4.90  
 Tolerance mm : + 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
 rack travel mm : 5.40  
 Tolerance mm : + 0.20

TORQUE CONTROL

Rated speed rpm : 1100  
 rack travel mm : 10.55  
 Tolerance mm : + 0.05

Rated speed rpm : 600  
 rack travel mm : 10.55  
 Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 82.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
  
Combination No. : F 002 A0Z 042  
  
Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215  
  
Governor  
Governor design. : RSV500...1100A0C924R  
Governor no. : F 002 A20 232

Cust. part No. : 3932477

Customer spec. information  
Customer : CDC  
Motor : 6BT  
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 093  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

E01

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 9.75  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 500

Rack travel in mm : 5.10

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.80  
Rated speed rpm : 1160

Tolerance 1/min : ± 5

rack travel mm : 5.40

Rated speed rpm : 1220

Tolerance 1/min : ± 5

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1400

rack travel mm : 5.40

Rated speed rpm : 1225

Tolerance 1/min : ± 15

---

LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

Control lever difference

Grad : 15.0

tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.60

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

E03

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
Combination No. : 0 402 046 861  
Injection pump  
Pump designation : PE6P110A320RS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQ325/1300PA1150  
Governor no. : 0 421 801 716

Cust. part No. : 1284420/4

Customer spec. information  
Customer : DAF  
Motor : NS156M  
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

E04

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 20.50  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.10  
Check  
tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1351  
guide sleeve  
travel mm : 6.37  
Tolerance mm : ± 0.10

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.99  
Tolerance mm : ± 0.10

Rated speed rpm : 1300  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 427  
guide sleeve  
travel mm : 3.54

Tolerance mm : ± 0.10

Rated speed rpm : 590  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1570  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 650

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.85  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5  
Check  
speed 1/min : ± 10

rack travel mm : 4.00  
Rated speed rpm : 1450  
Tolerance 1/min : ± 15

Check  
speed 1/min : + 20  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. : > 5.90

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 415

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 600  
Pressure hPa : -

EO6

rack travel mm : 7.35  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370  
rack travel mm : 10.75  
Tolerance mm : + 0.05

Pressure hPa : 200  
rack travel mm : 8.40  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

---

rack travel mm : 11.85  
Tolerance mm : + 0.05

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 046 873  
  
Injection pump  
Pump designation : PES6P110A320RS3329  
EP type number : 0 412 016 743  
  
Governor  
Governor design. : RQV325...1250PA1251  
Governor no. : 0 421 814 164

Cust. part No. : 1305227

Customer-spec. information  
Customer : DAF  
Motor : NS177M  
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 000  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000  
  
Rack travel in mm : 12.25  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0

Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

Rated speed rpm : 325

Rack travel in mm : 4.40

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 4.40

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1308

guide sleeve  
travel mm : 10.40

Tolerance mm : ± 0.15

Rated speed rpm : 325

guide sleeve  
travel mm : 1.25

Tolerance mm : ± 0.20

Rated speed rpm : 868

guide sleeve  
travel mm : 5.45

Tolerance mm : ± 0.25

Rated speed rpm : 520

guide sleeve  
travel mm : 3.02

Tolerance mm : ± 0.25

Rated speed rpm : 1510

guide sleeve  
travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1360

Rack travel in mm : 11.25

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0

Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

Rated speed rpm : 1000

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0

Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

CONTROL LEVER

control lever

position degree : 123.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.25

Rated speed rpm : 1290

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1375

Tolerance 1/min : ± 15

Check  
speed 1/min : ± 20

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1500

---

**LOW IDLE**

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT min. : > 5.90

Testing:

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm : ± 0.10

Rated speed rpm : 375

---

**TORQUE CONTROL**

Rated speed rpm : 1000  
rack travel mm : 12.25  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 12.25  
Tolerance mm : ± 0.10

Rated speed rpm : 1250  
rack travel mm : 12.25  
Tolerance mm : ± 0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 12.25  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 7.00  
Tolerance mm : ± 0.20

**MEASUREMENT**

Rated speed rpm : 600

Pressure hPa : 430  
rack travel mm : 10.90  
Tolerance mm : ± 0.05

Pressure hPa : 220  
rack travel mm : 7.85  
Tolerance mm : ± 0.10

---

**FUEL DELIVERY CHARACTERISTICS**

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

rack travel mm : 12.25  
Tolerance mm : ± 0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

---

**LOW IDLE**

Rated speed rpm : 325  
Rack travel in mm : 4.40  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
Combination No. : 0 402 046 881  
Injection pump  
Pump designation : PES6P110A320RS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQ325...1250PA1370  
Governor no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information  
Customer : DAF  
Motor : NS177M  
Power kW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10  
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	149.5
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	4.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	7.5
<hr/>	

Rated speed rpm :	325
<hr/>	
Rack travel in mm :	4.40
Tolerance mm :	+ 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes :	26.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 2.5
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance	
cm <sup>3</sup> /1000S. :	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1292
guide sleeve	
travel mm :	6.37
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	325
guide sleeve	
travel mm :	1.99
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1000
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	426

guide sleeve	
travel mm :	3.48
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	590
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	1460
guide sleeve	
travel mm :	11.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

control lever	
position degree :	109
Rated speed rpm :	600
<hr/>	
Rack travel in mm :	20.00
Tolerance mm :	+ 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1000
Aneroid pressure	
hPa :	1500
Del. quantity	
cm <sup>3</sup> /1000 strokes :	149.5
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	4.0
Check tolerance	
cm <sup>3</sup> /1000S. :	7.5

CONTROL LEVER

control lever	
position degree :	97.0
tolerance degree :	+ 4.0
<hr/>	
RATED SPEED	
rack travel mm :	11.25
Rated speed rpm :	1290
Tolerance 1/min :	+ 5
Check	
speed 1/min :	+ 10
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1370

Tolerance 1/min : + 15  
Check  
speed 1/min : + 20  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
  
CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 415  
Tolerance 1/min : + 20

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.25  
Tolerance mm : + 0.05

Rated speed rpm : 1250  
rack travel mm : 12.25  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 12.25  
Tolerance mm : + 0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 7.00  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430  
rack travel mm : 10.90  
Tolerance mm : + 0.05

Pressure hPa : 220  
rack travel mm : 8.10  
Tolerance mm : + 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance

cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.98  
Test oil : ISO 4113  
Combination No. : 0 402 076 820  
Injection pump  
Pump designation : PES6P120A720LS3395  
EP type number : 0 412 026 806  
Governor  
Governor design. : RSV350...1200POA688  
Governor no. : 0 421 833 610

Cust. part No. :

Customer-spec. information

Customer : FINCANTIERI  
Motor : L 1306 T 2 MSD  
Power kW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Overflow quantity min. l/h : 115  
Tolerance l/h : ± 15.0  
Test nozzle holder assembly : 1 688 901 105  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
Firing order : 1- 5A- 3- 6A- 2  
                  : - 4A  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200  
Rack travel in mm : 14.45  
Tolerance mm : ± 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 276.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  


---

  
 Rated speed rpm : 350  
  
 Rack travel in mm : 4.00  
 Tolerance mm : ± 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800  
  
 Rack travel in mm : 0.50  
 Tolerance mm : ± 0.20  
  
 governor spring  
 pre-tension  
 click setting x : 5.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
 Aneroid pressure  
 hPa : 1600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 276.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 100.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.40  
 Rated speed rpm : 1245  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1410  
 Tolerance 1/min : ± 15

rack travel mm : 0.85  
 Tolerance mm : ± 0.55  
 Rated speed rpm : 1570

LOW IDLE

control lever  
 position degree : 78.0  
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
 rack travel mm : 3.50  
 Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350  
 rack travel mm : 4.00  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 505  
 Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1200  
 rack travel mm : 14.45  
 Tolerance mm : ± 0.05



Rated speed rpm : 600  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 400  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1600  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1050  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 349.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -

E17

Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

#### STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 500.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 350  
Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.01.98  
Test oil : ISO 4113  
Combination No. : 0 402 648 780  
Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877  
Governor  
Governor design. : RQV300...1050PA1078  
                  : -2K  
Governor no. : 0 421 815 548  
Cust. part No. : 988 04 47

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI-EA3  
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Overflow quantity min. l/h : 230  
Tolerance l/h : ± 20.0  
Test nozzle holder assembly : 1 688 901 105  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
Firing order : 1- 8- 7- 2- 6  
                  : - 3- 5- 4  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 12.65  
Tolerance mm : ± 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.90

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.27  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.11  
Tolerance mm : + 0.20

Rated speed rpm : 755  
guide sleeve  
travel mm : 6.17  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : + 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1180

Rack travel in mm : 12.50  
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.65  
Rated speed rpm : 1110  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. : > 6.60

Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm : + 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.65  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm : + 0.10

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : + 0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 10.80  
Tolerance mm : + 0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 12.65  
Tolerance mm : + 0.05

Rated speed rpm : 1050  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1050  
Pressure hPa : 1050  
rack travel mm : 11.80

Tolerance mm : + 0.05  
Pressure hPa : 700  
rack travel mm : 9.50  
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.90  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.01.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 780A  
  
Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877  
  
Governor  
Governor design. : RQV300...1050PA1078  
: -2K  
Governor no. : 0 421 815 548  
  
Cust. part No. : 988 04 47

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI-EA3  
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4  
  
Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050  
  
Rack travel in mm : 12.65  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.27  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.11  
Tolerance mm : + 0.20

Rated speed rpm : 755  
guide sleeve  
travel mm : 6.17  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : + 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1182

Rack travel in mm : 12.48  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.65  
Rated speed rpm : 1110  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300



CRT mm min. : > 6.60

Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

Rated speed rpm : 400

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.65  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : ± 0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm : ± 0.10

Rated speed rpm : 600  
rack travel mm : 10.80  
Tolerance mm : ± 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 12.65  
Tolerance mm : ± 0.05

Rated speed rpm : 1050  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 1050  
rack travel mm : 11.80  
Tolerance mm : ± 0.05

Pressure hPa : 700  
rack travel mm : 9.50

Tolerance mm : ± 0.20

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
Combination No. : 0 402 736 825  
Injection pump  
Pump designation : PES6P120A720/3LS7251  
EP type number : 0 412 726 860

Governor  
Governor design. : RQV300...1000PA962  
                  : -8K  
Governor no. : 0 421 815 303

Cust. part No. : 3-7206

Customer-spec. information  
Customer : MAN  
Motor : D2866LF09  
Power KW : 309.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

E27

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
                  : 3

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 900

---

Rack travel in mm : 13.95  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 296.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Rated speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1055  
guide sleeve  
travel mm : 9.19  
Tolerance mm : ± 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 3.41  
Tolerance mm : ± 0.25

Rated speed rpm : 780

guide sleeve  
travel mm : 6.01  
Tolerance mm : ± 0.25

Rated speed rpm : 301  
guide sleeve  
travel mm : 3.26  
Tolerance mm : ± 0.25

Rated speed rpm : 351  
guide sleeve  
travel mm : 3.96  
Tolerance mm : ± 0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.39  
Tolerance mm : ± 0.25

Rated speed rpm : 1186  
guide sleeve  
travel mm : 12.00  
Tolerance mm : ± 0.25

Rated speed rpm : 1280  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 12.40  
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 296.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

**CONTROL LEVER**

control lever  
position degree : 291.0  
tolerance degree : + 4.0

**RATED SPEED**

rack travel mm : 12.40  
Rated speed rpm : 1045  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1140  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

---

**LOW IDLE**

control lever  
position degree : 247.0  
tolerance degree : + 4.0

**Setting point w/out bumper spring**

Rated speed rpm : 200

CRT mm min. : > 7.30

**Testing:**

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : + 0.10

Rated speed rpm : 300

---

**TORQUE CONTROL**

Rated speed rpm : 900  
rack travel mm : 13.95  
Tolerance mm : + 0.05

Rated speed rpm : 1000  
rack travel mm : 13.50  
Tolerance mm : + 0.10

Rated speed rpm : 750  
rack travel mm : 13.40  
Tolerance mm : + 0.10

Rated speed rpm : 750

F01

rack travel mm : 6.50  
Tolerance mm : + 0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 900  
Pressure hPa : 1200  
rack travel mm : 13.95  
Tolerance mm : + 0.05

Rated speed rpm : 900  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm : + 0.10

**MEASUREMENT**

Rated speed rpm : 900

Pressure hPa : 720  
rack travel mm : 12.00  
Tolerance mm : + 0.20

Pressure hPa : 220  
rack travel mm : 9.45  
Tolerance mm : + 0.05

---

**Start interlock**

Rated speed rpm : > 100  
Rated speed rpm : < 240

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 260

---

**FUEL DELIVERY CHARACTERISTICS**

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : 1200

Rated speed rpm : 750  
rack travel mm : 13.40  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.20  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0

F02

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.97  
Test oil : ISO 4113  
Combination No. : 9 400 087 503  
Injection pump  
Pump designation : PES5P120A720LS7280  
EP type number : 9 400 087 087  
Governor  
Governor design. : RQV300...950PA1263  
Governor no. : 9 420 080 392  
Cust. part No. : 0270740102

Customer spec. information  
Customer : MBB  
Motor : OM 449 LA-EUROII  
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 253.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 4.0

Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 5.30

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700

guide sleeve  
travel mm : 5.45

Tolerance mm : + 0.25

Rated speed rpm : 1050

guide sleeve  
travel mm : 7.80

Tolerance mm : + 0.10

Rated speed rpm : 300

guide sleeve  
travel mm : 0.75

Tolerance mm : + 0.25

Rated speed rpm : 500

guide sleeve  
travel mm : 3.55

Tolerance mm : + 0.25

Rated speed rpm : 1165

guide sleeve  
travel mm : 9.45

Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1120

F04

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 52.0  
tolerance degree : + 4.0

control lever  
position degree : 117.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1005

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1125

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1220

LOW IDLE

control lever  
position degree : 83.0  
tolerance degree : + 4.0

control lever  
position degree : 18.0  
tolerance degree : + 4.0



Setting point w/out bumper spring

Rated speed rpm : 100

CRT min. : > 8.00

Testing:

Rated speed rpm : 300  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 13.50  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 1.75  
Tolerance mm : ± 0.15

Pressure hPa : 500  
rack travel mm : 0.60  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 13.15  
Tolerance mm : ± 0.05

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 246.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.30  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.98  
Test oil : ISO 4113  
Combination No. : F 000 409 005  
Injection pump  
Pump designation : PES6P110A720RS3396  
EP type number : F 000 400 004  
Governor  
Governor design. : RQV300...1300PA1379K  
Governor no. : F 000 420 504  
Cust. part No. : 0280742402

Customer spec. information  
Customer : MBB  
Motor : OM366LA-EURO II  
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.3  
Test nozzle holder assembly : 1 688 901 101  
Opening pressure bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

F07

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 3.20  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10  
Rack travel in mm : 21.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 14.00  
Tolerance mm : + 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 115.5  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance cm<sup>3</sup>/1000S. : + 4.0  
Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 300

Rack travel in mm : 5.60  
 Tolerance mm : ± 0.20

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 10.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.0

Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1356  
 guide sleeve  
 travel mm : 9.16  
 Tolerance mm : ± 0.10

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.45  
 Tolerance mm : ± 0.25

Rated speed rpm : 530  
 guide sleeve  
 travel mm : 4.01  
 Tolerance mm : ± 0.25

Rated speed rpm : 1720  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 115.5

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0

Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

CONTROL LEVER

control lever  
 position degree : 110.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.90  
 Rated speed rpm : 1340  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1485  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1600

LOW IDLE

control lever  
 position degree : 65.0  
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
 CRT mm min. : > 7.00

Testing:

Rated speed rpm : 300  
 rack travel mm : 5.60  
 Tolerance mm : ± 0.20

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1300  
 rack travel mm : 14.00  
 Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.00  
Tolerance mm : +- 0.05

Rated speed rpm : 780  
rack travel mm : 13.25  
Tolerance mm : +- 0.05

Rated speed rpm : 1000  
rack travel mm : 13.75  
Tolerance mm : +- 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.00  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 250  
rack travel mm : 0.40  
Tolerance mm : +- 0.05

Pressure hPa : 500  
rack travel mm : 1.70  
Tolerance mm : +- 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check speed 1/min : > 80  
Check speed 1/min : < 220

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 780  
rack travel mm : 13.25  
Tolerance mm : +- 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.98  
Test oil : ISO 4113  
Combination No. : F 000 409 102  
Injection pump  
Pump designation : PES6P120A720LS7257  
: -11  
EP type number : F 000 400 201  
Governor  
Governor design. : RQV300...950PA1242  
Governor no. : 9 420 080 387  
Cust. part No. : 0280743302

Customer-spec. information  
Customer : MBB  
Motor : OM 447LA Euro II  
Power KW : 264.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.3  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

F11

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.70  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 21.00  
Firing order : 6- 2- 4- 1- 5-  
: 3  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 550  
Rack travel in mm : 13.40  
Tolerance mm : + 0.05  
Del. quantity  
cm3/1000 strokes : 277.5  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 5.00  
 Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 7.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 6.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700  
 guide sleeve  
 travel mm : 4.55  
 Tolerance mm : ± 0.25

Rated speed rpm : 1050  
 guide sleeve  
 travel mm : 7.70  
 Tolerance mm : ± 0.10

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.75  
 Tolerance mm : ± 0.25

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 3.45  
 Tolerance mm : ± 0.25

Rated speed rpm : 1165  
 guide sleeve  
 travel mm : 9.55  
 Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1120

Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
 Aneroid pressure  
 hPa : 1300

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 277.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 115.0  
 tolerance degree : ± 4.0

RATED SPEED  
 rack travel mm : 12.10  
 Rated speed rpm : 1025  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1135  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1230

LOW IDLE

control lever  
 position degree : 78.0  
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100



CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : ± 0.10

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 13.40  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 13.20  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.40  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 13.25  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 13.40  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 2.40  
Tolerance mm : ± 0.15

Pressure hPa : 550  
rack travel mm : 1.00  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100

F13

Rated speed rpm : < 220

Check  
speed 1/min : > 80

Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 750  
rack travel mm : 13.40  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 268.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.01.98  
Test oil : ISO 4113

Combination No. : F 000 409 888

Injection pump  
Pump designation : PES5P120A  
EP type number : 0

Governor  
Governor design. : RQV300...950  
Governor no. : 0

Cust. part No. :

Customer-spec. information  
Customer : MBB

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

## Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300  
Rack travel in mm : 6.20  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.45  
Tolerance mm : + 0.25

Rated speed rpm : 1050  
guide sleeve  
travel mm : 7.80  
Tolerance mm : + 0.10

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.75  
Tolerance mm : + 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.55  
Tolerance mm : + 0.25

Rated speed rpm : 1165  
guide sleeve  
travel mm : 9.45  
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1120

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : + 6.0

RATED SPEED  
rack travel mm : 12.55  
Rated speed rpm : 1035  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1140  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. : > 10.00

Testing:

Rated speed rpm : 300  
rack travel mm : 6.20

Tolerance mm : ± 0.10

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.55  
Tolerance mm : ± 0.05

Rated speed rpm : 550  
rack travel mm : 13.95  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.95  
Tolerance mm : ± 0.05

Rated speed rpm : 850  
rack travel mm : 13.90  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 500  
rack travel mm : 1.10  
Tolerance mm : ± 0.15

Pressure hPa : 900  
rack travel mm : 2.65  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 210

Check speed 1/min : > 80  
Check speed 1/min : < 230

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 302.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 13.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 294.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 286.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.20  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.02.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 007

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1100A0C881R  
Governor no. : F 002 A20 207

Cust. part No. : 3928597

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTA  
Power KW : 122.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.40

Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.9

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 485

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.9

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 11.40  
Rated speed rpm : 1155  
Tolerance 1/min :  $\pm$  5

rack travel mm : 6.50  
Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 6.50  
Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  15

---

LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 20.0  
tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 485  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10



Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 485  
rack travel mm : 5.20  
Tolerance mm : + 0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.40  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 13.60  
Tolerance mm : + 0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.90  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 700  
rack travel mm : 12.30  
Tolerance mm : + 0.20

Pressure hPa : 500  
rack travel mm : 10.80  
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 15.0

LOW IDLE

Rated speed rpm : 485  
  
Rack travel in mm : 5.20  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 613  
  
Injection pump  
Pump designation : PES6P120A32ORS7372  
EP type number : 0 412 726 940  
  
Governor  
Governor design. : RQV250...1250PA1283K  
Governor no. : 0 421 815 516

Cust. part No. : 3866785

Customer-spec. information  
Customer : CDC  
Motor : 68TA  
Power kW : 164.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 2 417 413 093  
  
Inlet press. bar : 2.0  
Tolerance bar : + 0.1  
  
Test nozzle holde  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 4.00  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
  
Start of delivery blocking  
  
°NW after s.o.d. : 11.00  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 12.05  
Tolerance mm : + 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 7.40  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1305  
guide sleeve  
travel mm : 7.93  
Tolerance mm : ± 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.39  
Tolerance mm : ± 0.20

Rated speed rpm : 864  
guide sleeve  
travel mm : 5.36  
Tolerance mm : ± 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.18  
Tolerance mm : ± 0.25

Rated speed rpm : 1860  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.00  
Rated speed rpm : 1335  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1500  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1635

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

Control lever difference  
Grad : 38.0  
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 275  
CRT mm min. : > 8.20

Testing:

Rated speed rpm : 300  
rack travel mm : 7.40  
Tolerance mm : + 0.20

Rated speed rpm : 450

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.05  
Tolerance mm : + 0.05

Rated speed rpm : 900  
rack travel mm : 11.80  
Tolerance mm : + 0.10

Rated speed rpm : 800  
rack travel mm : 12.00  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 11.40  
Tolerance mm : + 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 900

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 550  
rack travel mm : 11.10  
Tolerance mm : + 0.20

Pressure hPa : 265  
rack travel mm : 10.30  
Tolerance mm : + 0.20

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 250

Check speed 1/min : > 80  
Check speed 1/min : < 260

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 12.00  
Tolerance mm : + 0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 25.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 7.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.02.98  
Test oil : ISO 4113

Combination No. : 9 400 030 695

Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214

Governor  
Governor design. : RSV475...1250AJC825R  
Governor no. : 9 420 034 701

Cust. part No. : 3928665

Customer-spec. information  
Customer : CDC  
Motor : 4BT3.9  
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 475

Rack travel in mm : 5.80  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

CONTROL LEVER

control lever  
position degree : 114.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50

Rated speed rpm : 1340

Tolerance 1/min : + 5

rack travel mm : 6.80

Rated speed rpm : 1405

Tolerance 1/min : + 5

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1500

rack travel mm : 6.80

Rated speed rpm : 1405

Tolerance 1/min : + 15

---

LOW IDLE

control lever  
position degree : 87.0

tolerance degree : + 4.0

Control lever difference

Grad : 27.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 475

rack travel mm : 5.30

Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475

rack travel mm : 5.80  
Tolerance mm : ± 0.10

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

Rated speed rpm : 750

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.60  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 12.35  
Tolerance mm : ± 0.20

Pressure hPa : 460  
rack travel mm : 11.90  
Tolerance mm : ± 0.20

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.02.98  
Test oil : ISO 4113  
Combination No. : 9 400 030 747  
Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214  
Governor  
Governor design. : RSV475...1100A0C863R  
Governor no. : 9 420 034 721  
Cust. part No. : 3930152

Customer spec. information  
Customer : CDC  
Motor : 4BT3.9  
Power KW : 71.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 093  
Inlet press. bar : 2.0  
Tolerance bar : + 0.1  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

601

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0  
Prestroke mm : 2.45  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Start of delivery blocking  
\*NW after s.o.d. : 7.50  
Tolerance : + 0.50  
Check  
tolerance \*NW : + 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 11.75  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 475

Rack travel in mm : 5.70  
 Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 21.5

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : ± 0.20

governor spring  
 pre-tension  
 click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 100.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.5

CONTROL LEVER

control lever  
 position degree : 99.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.75  
 Rated speed rpm : 1170  
 Tolerance 1/min : ± 5

rack travel mm : 6.00  
 Rated speed rpm : 1240  
 Tolerance 1/min : ± 5

rack travel mm : 0.85  
 Tolerance mm : ± 0.55  
 Rated speed rpm : 1375

rack travel mm : 6.00  
 Rated speed rpm : 1240  
 Tolerance 1/min : ± 15

LOW IDLE

control lever  
 position degree : 87.0  
 tolerance degree : ± 4.0

Control lever difference  
 Grad : 12.0  
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475  
 rack travel mm : 5.20  
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.70  
Tolerance mm : ± 0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 12.75  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 750  
Pressure hPa : 1000

Rated speed rpm : 750  
Pressure hPa : -  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 750

Pressure hPa : 600  
rack travel mm : 12.70  
Tolerance mm : ± 0.20

Pressure hPa : 410  
rack travel mm : 11.80  
Tolerance mm : ± 0.20

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Aneroid pressure  
hPa : -

G03

Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 062

Injection pump  
Pump designation : PES4A95D320/3RS2927  
EP type number : F 002 A10 017

Governer  
Governer design. : RSV475...1100A2C942R  
Governer no. : F 002 A20 243

Cust. part No. : 3930142

Customer-spec. information

Customer : CDC  
Motor : 4BNA3.9  
Power KW : 50.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

G04

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 475

Rack travel in mm : 5.10  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

CONTROL LEVER

control lever  
position degree : 89.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.20  
Rated speed rpm : 1175  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1240

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : + 15

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Control lever difference  
Grad : 15.0  
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 4.60  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 475  
  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

G06

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 063

Injection pump  
Pump designation : PES4A95D320/3RS2927  
EP type number : F 002 A10 017

Governor  
Governor design. : RSV475...1100A2C943R  
Governor no. : F 002 A20 244

Cust. part No. : 3931397

Customer-spec. information  
Customer : CDC  
Motor : 4BNA3.9  
Power KW : 45.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

607

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 475

Rack travel in mm : 4.60  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 7.20  
Rated speed rpm : 1175  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1215  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1215  
Tolerance 1/min : ± 15

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

Control lever difference  
Grad : 15.0  
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 4.10  
Tolerance mm : ± 0.10

Rated speed rpm : 100



CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 8.20  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 9.20  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 4.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

G09

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.01.98  
Test oil : ISO 4113  
Combination No. : F 002 A0Z 064  
Injection pump  
Pump designation : PES4A95D320/3RS2927  
EP type number : F 002 A10 017  
Governor  
Governor design. : RSV475...1000A2C944R  
Governor no. : F 002 A20 245  
Cust. part No. : 3933090

Customer-spec. information  
Customer : CDC  
Motor : 4BNA3.9  
Power KW : 40.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 093  
Inlet press. bar : 2.0  
Tolerance bar : + 0.1  
Test nozzle holder assembly : 1 688 901 101  
Opening pressure bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

G10

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0  
Prestroke mm : 2.85  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75  
Start of delivery blocking  
°NW after s.o.d. : 6.50  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 8.05  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 475

Pack travel in mm : 4.75  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 7.00  
Rated speed rpm : 1070  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1175

rack travel mm : 4.00  
Rated speed rpm : 1050  
Tolerance 1/min : ± 15

---

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : ± 4.0

Control lever difference  
Grad : 18.0  
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 4.25  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 4.75  
Tolerance mm : ± 0.10

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 8.05  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 9.15  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 4.75  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.02.98  
Test oil : ISO 4113  
Combination No. : F 002 A0Z 069  
Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215  
Governor  
Governor design. : RSV500...1100A2C947R  
Governor no. : F 002 A20 248  
Cust. part No. : 3933623

Customer-spec. information

Customer : CDC  
Motor : 68TA  
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 2 417 413 093  
Inlet press. bar : 2.0  
Tolerance bar : +- 0.1  
Test nozzle holder assembly : 1 688 901 101  
Opening pressure bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : +- 1.0  
Prestroke mm : 2.85  
Tolerance mm : +- 0.05  
Check tolerance mm : +- 0.10  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Start of delivery blocking  
°NW after s.o.d. : 8.50  
Tolerance : +- 0.50  
Check tolerance °NW : +- 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 13.00  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 500

Rack travel in mm : 5.50  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 3.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1400

Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 13.00  
Rated speed rpm : 1155  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : +- 5

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : +- 15

---

LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : +- 4.0

Control lever difference  
Grad : 20.0  
tolerance degree : +- 6.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.00  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT ~~mm~~ min. : > 19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 5.50  
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.00  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 14.65  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
rack travel mm : 13.80  
Tolerance mm : + 0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1400

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.60  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 13.50  
Tolerance mm : + 0.20

Pressure hPa : 600  
rack travel mm : 12.00  
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

rack travel mm : 13.80  
Tolerance mm : + 0.20

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 15.0

LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 5.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

End of test specification sheet

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 046 872  
  
Injection pump  
Pump designation : PES6P120A320RS3337  
EP type number : 0 412 026 770  
  
Governor  
Governor design. : RQV300...1250PA1246K  
Governor no. : 0 421 815 480  
  
Cust. part No. : CCEP 5155A 66-217

Customer-spec. information  
Customer : RENAULT V.T.  
Motor : MIDR 06-02-26 U4  
Power KW : 111.0

**TEST BENCH REQUIREMENTS**

Inlet Line : 3.2  
  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 084  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Overflow quantity min. L/h : 135  
Tolerance L/h : ± 10.0  
  
Test nozzle holder assembly : 1 688 901 101  
  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

**REMARKS**

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.10  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
  
Rack travel in mm : 11.00  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance \*NW : ± 0.75  
  
Start of delivery mark  
  
\*NW after s.o.d. : 0.08  
Tolerance : ± 0.50  
Check tolerance \*NW : ± 0.75  
  
Barrel no. : 1  
  
Beginning of delivery difference  
betw. rack trav. mm : 21.00  
and maximum rack travel : 11.00  
Difference \* CS : 2.00



---

CRT ZERO POSITION

Rack travel in mm : 10.60  
Tolerance mm : ± 0.05

---

BASIC SETTING

Rated speed rpm : 1250

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -5.80  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1333  
guide sleeve  
travel mm : 10.40  
Tolerance mm : ± 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31  
Tolerance mm : ± 0.20

Rated speed rpm : 900  
guide sleeve  
travel mm : 6.50  
Tolerance mm : ± 0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.77  
Tolerance mm : ± 0.25

Rated speed rpm : 1580  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1400

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : -1.00

Rated speed rpm : 1310  
Tolerance 1/min : + 15  
  
rack travel mm : -6.60  
Rated speed rpm : 1405  
Tolerance 1/min : + 5  
  
rack travel mm : -10.10  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

---

LOW IDLE

control lever  
position degree : 242.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : < -4.80

Testing:

Rated speed rpm : 300  
rack travel mm : -5.80  
Tolerance mm : + 0.10

Rated speed rpm : 300

---

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750  
rack travel mm : -1.60  
Tolerance mm : + 0.10

Rated speed rpm : 350  
rack travel mm : -2.45  
Tolerance mm : + 0.20

---

Start interlock

Rated speed rpm : > 130  
Rated speed rpm : < 245

Check  
speed 1/min : > 110  
Check  
speed 1/min : < 255

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

---

rack travel mm : -2.45  
Tolerance mm : + 0.20

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 19.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : -5.80  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 646 675  
Injection pump  
Pump designation : PE6P120A32ORS7299  
EP type number : 0 412 626 885  
Governor  
Governor design. : RQV275...1000PA1337K  
Governor no. : 0 421 815 554  
Cust. part No. : 1322504

## Customer-spec. information

Customer : DAF  
Motor : WS 268 M  
Power KW : 268.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 000  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980  
Rack travel in mm : 13.55  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.10  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1047  
guide sleeve  
travel mm : 7.35  
Tolerance mm : + 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : + 0.20

Rated speed rpm : 820  
guide sleeve  
travel mm : 5.14  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.34  
Tolerance mm : + 0.25

Rated speed rpm : 1282  
guide sleeve  
travel mm : 12.00  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1248

Rack travel in mm : 12.80  
Tolerance mm : + 2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 12.55  
Rated speed rpm : 1042  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT min. : > 7.50

Testing:

Rated speed rpm : 275  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.55  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.05  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 12.35  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
rack travel mm : 11.90  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.55  
Tolerance mm : ± 0.05

Rated speed rpm : 980  
Pressure hPa : -  
rack travel mm : 8.20  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 980  
Pressure hPa : 820

rack travel mm : 12.25  
Tolerance mm : ± 0.05

Pressure hPa : 400  
rack travel mm : 9.40  
Tolerance mm : ± 0.15

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 12.35  
Tolerance mm : ± 0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 5.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed

Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 704  
  
Injection pump  
Pump designation : PE6P120A320LS7904  
EP type number : 0 412 626 961  
  
Governor  
Governor design. : RQV300...950PA1377  
Governor no. : 0 421 814 208

Cust. part No. : 04223929 KY

Customer spec. information  
Customer : KHD  
Motor : BF6M1015/C  
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 2 417 413 033  
  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
  
Overflow quantity  
min. l/h : 240  
Tolerance l/h : + 20.0  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 4.05  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
  
Firing order : 6- 3- 5- 2- 4-  
: 1  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Start of delivery blocking  
  
°NW after s.o.d. : 300.00  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 999  
guide sleeve  
travel mm : 10.19  
Tolerance mm : ± 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.13  
Tolerance mm : ± 0.20

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.10  
Tolerance mm : ± 0.25

Rated speed rpm : 1160  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1050

Rack travel in mm : 12.40  
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 12.40  
Rated speed rpm : 985  
Tolerance 1/min : ± 5

rack travel mm : 4.50  
Rated speed rpm : 1050  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1200

LOW IDLE



control lever  
position degree : 76.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300  
rack travel mm : 4.70  
Tolerance mm : ± 0.10  
  
Rated speed rpm : 345

---

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.40  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1700  
rack travel mm : 13.40  
Tolerance mm : ± 0.05

Rated speed rpm : 400  
Pressure hPa : -  
rack travel mm : 8.40  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 400  
  
Pressure hPa : 550  
rack travel mm : 10.20  
Tolerance mm : ± 0.20

Pressure hPa : 1000  
rack travel mm : 12.50  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.40  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 4.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 646 887AB  
Injection pump  
Pump designation : PE6P120A720RS7188  
: -10  
EP type number : 0 412 626 924  
Governor  
Governor design. : RQV200...950PA725-7  
Governor no. : 0 421 813 803

Cust. part No. : 1333122-1

---

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 23

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper  
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity min. L/h : 190  
Tolerance L/h : ± 20.0

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery mark  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 1

---

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.85  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1045  
guide sleeve

travel mm : 8.50  
Tolerance mm : + 0.10

Rated speed rpm : 225  
guide sleeve

travel mm : 1.40  
Tolerance mm : + 0.20

Rated speed rpm : 650  
guide sleeve

travel mm : 4.80

G28

Tolerance mm : + 0.30

Rated speed rpm : 350  
guide sleeve

travel mm : 2.70  
Tolerance mm : + 0.30

Rated speed rpm : 1125  
guide sleeve

travel mm : 9.50  
Tolerance mm : + 0.20

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1

Rated speed rpm : 1150

Rack travel in mm : 9.50

Tolerance mm : + 2.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 60.0

tolerance degree : + 4.0

control lever  
position degree : 114.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.80

Rated speed rpm : 995

Tolerance 1/min : + 5

Check

speed 1/min : + 10

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 10.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. : > 6.00

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : + 0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.85  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 13.85  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.85  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.60  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 270  
rack travel mm : 10.90  
Tolerance mm : + 0.15

Pressure hPa : 440  
rack travel mm : 11.90  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 646 937AB  
Injection pump  
Pump designation : PE6P120A720RS7188  
                  : -100  
EP type number : 0 412 626 925  
Governor  
Governor design. : RQV200...950PA725-7  
Governor no. : 0 421 813 803

Cust. part No. : 1333121-1

Customer-spec. information  
Customer : SCANIA  
Motor : DSC11 21

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper  
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

H03

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quantit.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1045  
guide sleeve  
travel mm : 8.50  
Tolerance mm : ± 0.10

Rated speed rpm : 225  
guide sleeve  
travel mm : 1.40  
Tolerance mm : ± 0.20

Rated speed rpm : 650  
guide sleeve  
travel mm : 4.80  
Tolerance mm : ± 0.30

Rated speed rpm : 350

guide sleeve  
travel mm : 2.70  
Tolerance mm : ± 0.30

Rated speed rpm : 1125  
guide sleeve  
travel mm : 9.50  
Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 9.50  
Tolerance mm : ± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

control lever  
position degree : 112.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.70  
Rated speed rpm : 995  
Tolerance 1/min : ± 5  
Check  
speed 1/min : ± 10

rack travel mm : 4.00  
Rated speed rpm : 1120  
Tolerance 1/min : ± 15

Check  
speed 1/min : + 20  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree : + 4.0

control lever  
position degree : 10.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. : > 6.07

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : + 0.10

Rated speed rpm : 275

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.75  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 12.75  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.75  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.60

H05

Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 270  
rack travel mm : 11.05  
Tolerance mm : + 0.15

Pressure hPa : 440  
rack travel mm : 12.00  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 250



Rack travel in mm : 4.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 678 836  
  
Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860  
  
Governor  
Governor design. : RSV550...1050POA672  
Governor no. : 0 421 833 591  
  
Cust. part No. : 0270746402

Customer spec. information  
Customer : MB-NFZ  
Motor : OM442LA  
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 2.0  
Tolerance bar : +- 0.1  
  
Overflow quantity min. l/h : 225  
Tolerance l/h : +- 20.0  
  
Test nozzle holder assembly : 1 688 901 105  
  
Opening pressure bar : 208.5  
Tolerance bar : +- 1.5

H07

Test Lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
  
Prestroke mm : 5.05  
Tolerance mm : +- 0.05  
Check tolerance mm : +- 0.10  
  
Rack travel in mm : 20.00  
Tolerance mm : +- 1.00  
  
Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1  
  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : +- 0.50  
Check tolerance \*NW : +- 0.75  
  
Start of delivery mark  
Tolerance : +- 0.10  
Check tolerance \*NW : +- 0.75  
  
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.60  
Tolerance mm : +- 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 550

Rack travel in mm : 4.00  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 2.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree : +- 4.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
Tolerance 1/min : +- 1  
rack travel mm : 14.60

Rated speed rpm : 1110  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1071  
Tolerance 1/min : +- 1  
rack travel mm : 14.60

Rated speed rpm : 1111  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1072  
Tolerance 1/min : +- 1  
rack travel mm : 14.60

Rated speed rpm : 1112  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1073  
Tolerance 1/min : + 1  
rack travel mm : 14.60

Rated speed rpm : 1113  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1074  
Tolerance 1/min : + 1  
rack travel mm : 14.60

Rated speed rpm : 1114  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1175  
Tolerance 1/min : + 1  
rack travel mm : 14.60

Rated speed rpm : 1115  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

---

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

H09

Testing:

Rated speed rpm : 550  
rack travel mm : 4.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.60  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 15.60  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 450  
Pressure hPa : 1200  
rack travel mm : 15.60  
Tolerance mm : + 0.10

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 9.75  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 450  
Pressure hPa : 600  
rack travel mm : 12.20  
Tolerance mm : + 0.15

Pressure hPa : 800  
rack travel mm : 14.10  
Tolerance mm : + 0.20

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200

Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 4.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.11.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 678 837  
  
Injection pump  
Pump designation : PE8P120A320LS7911  
EP type number : 0 412 628 926  
  
Governor  
Governor design. : RSV550...1050POA679  
Governor no. : 0 421 833 598

Cust. part No. : 027 074 6502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442LA, Euro  
Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 2.0  
Tolerance bar : + 0.1  
  
Overflow quantity  
min. l/h : 110  
Tolerance l/h : + 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 5.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : + 0.50  
  
Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1  
  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Start of delivery mark  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 550

Rack travel in mm : 4.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree : + 4.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1085  
Tolerance 1/min : + 1  
rack travel mm : 13.50

Rated speed rpm : 1125  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1087  
Tolerance 1/min : + 1  
rack travel mm : 13.50

Rated speed rpm : 1127  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1089  
Tolerance 1/min : + 1  
rack travel mm : 13.50

Rated speed rpm : 1129  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1091  
Tolerance 1/min : + 1  
rack travel mm : 13.50

Rated speed rpm : 1131  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1093  
Tolerance 1/min : + 1  
rack travel mm : 13.50

Rated speed rpm : 1133  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1095  
Tolerance 1/min : + 1  
rack travel mm : 13.50

Rated speed rpm : 1135  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 550  
rack travel mm : 4.20  
Tolerance mm : + 0.10

H13

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min : + 30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.40  
Tolerance mm : + 0.05

Rated speed rpm : 600  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 450  
Pressure hPa : 1100  
rack travel mm : 15.00  
Tolerance mm : + 0.10

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 450  
Pressure hPa : 750  
rack travel mm : 14.30  
Tolerance mm : + 0.20

Pressure hPa : 550  
rack travel mm : 12.50  
Tolerance mm : + 0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0



Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 550  
  
Rack travel in mm : 4.20  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 638  
Injection pump  
Pump designation : PES6P120A32ORS7449  
EP type number : 0 412 726 974

Governor  
Governor design. : RQ275/1050PA1373  
Governor no. : 0 421 801 831

Cust. part No. : CCEP 5171-66/254

## Customer-spec. information

Customer : RENAULT V.I.  
Motor : MI7R062045 C41  
Power KW : 152.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 220  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.25  
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Start of delivery mark

\*NW after s.o.d. : -0.95  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm : 11.70  
Tolerance mm : ± 0.05

---

BASIC SETTING

Rated speed rpm : 1050

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -6.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1125  
guide sleeve  
travel mm : 7.06  
Tolerance mm : ± 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.38  
Tolerance mm : ± 0.20

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.70  
Tolerance mm : ± 0.10

Rated speed rpm : 668  
guide sleeve  
travel mm : 6.18  
Tolerance mm : ± 0.10

Rated speed rpm : 377  
guide sleeve  
travel mm : 5.00  
Tolerance mm : ± 0.10

Rated speed rpm : 460  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1310  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

Rated speed rpm : 874  
guide sleeve  
travel mm : 6.52  
Tolerance mm : ± 0.10

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 500

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

**CONTROL LEVER**

control lever  
position degree : 276.0  
tolerance degree : ± 4.0

**RATED SPEED**

rack travel mm : -1.00  
Rated speed rpm : 1115  
Tolerance 1/min : ± 5

rack travel mm : -7.70  
Rated speed rpm : 1210  
Tolerance 1/min : ± 15

rack travel mm : -11.20  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

---

**LOW IDLE**

control lever  
position degree : 256.0  
tolerance degree : ± 4.0

**Setting point w/out bumper spring**

Rated speed rpm : 200  
CRT mm min. : < -4.30

**Testing:**

Rated speed rpm : 275  
rack travel mm : -6.20  
Tolerance mm : ± 0.10

rack travel mm : -9.70  
Rated speed rpm : 365  
Tolerance 1/min : ± 20

---

**TORQUE CONTROL**

Rated speed rpm : 1050

Rated speed rpm : 600  
rack travel mm : 0.80  
Tolerance mm : ± 0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 0.80  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -1.00  
Tolerance mm : ± 0.20

**MEASUREMENT**

Rated speed rpm : 500  
Pressure hPa : 280  
rack travel mm : 0.35  
Tolerance mm : ± 0.15

Pressure hPa : 160  
rack travel mm : -0.40  
Tolerance mm : ± 0.05

---

**Start interlock**

Rated speed rpm : > 100  
Rated speed rpm : < 195

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

**FUEL DELIVERY CHARACTERISTICS**

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : -6.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 645  
Injection pump  
Pump designation : PES6P120A320RS7364  
EP type number : 0 412 726 930  
Governor  
Governor design. : RQV300...1050PA1204  
Governor no. : 0 421 814 123  
Cust. part No. : CCEP 5148A 66-236

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 06.20.45D41  
Power KW : 219.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 078  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

H19

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.55  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 20.25  
Tolerance mm : + 0.75  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Start of delivery mark  
°NW after s.o.d. : -0.40  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.90  
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 600

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -7.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1135  
guide sleeve  
travel mm : 8.45  
Tolerance mm : + 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.33  
Tolerance mm : + 0.25

Rated speed rpm : 752  
guide sleeve  
travel mm : 6.09  
Tolerance mm : + 0.25

Rated speed rpm : 365

H20

guide sleeve  
travel mm : 2.40  
Tolerance mm : + 0.25

Rated speed rpm : 415  
guide sleeve  
travel mm : 3.28  
Tolerance mm : + 0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 3.86  
Tolerance mm : + 0.25

Rated speed rpm : 1460  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1230

Rack travel in mm : 11.70  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 303.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1140  
Tolerance 1/min : + 5

rack travel mm : -9.90  
Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : -13.40  
Tolerance mm : + 0.50  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 267.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : -7.60  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm max. : < -5.10

Rated speed rpm : 360

---

#### TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -2.50  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 240  
rack travel mm : -1.45  
Tolerance mm : + 0.15

H21

Pressure hPa : 400  
rack travel mm : -0.50  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 230

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 250

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : + 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE



Rated speed rpm : 300  
Rack travel in mm : -7.60  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 650  
Injection pump  
Pump designation : PES6P120A32ORS7344  
EP type number : 0 412 726 914  
Governor  
Governor design. : RQ275/1050PA999-6  
Governor no. : 0 421 801 785  
Cust. part No. : CCEP 5151A 66-230

Customer spec. information

Customer : RENAULT V.I.  
Motor : MIDR 062045 M41  
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 071  
Inlet press. bar : 2.5  
Overflow quantity  
min. l/h : 145  
Tolerance l/h : ± 10.0  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 11.00  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
°NW after s.o.d. : -0.15  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1  
Beginning of delivery differende  
betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference ° CS : 2.25

---

CRT ZERO POSITION

Rack travel in mm : 11.60  
Tolerance mm : ± 0.05

---

BASIC SETTING

Rated speed rpm : 600

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -7.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131

guide sleeve  
travel mm : 6.38

Tolerance mm : ± 0.10

H24

Rated speed rpm : 275  
guide sleeve  
travel mm : 0.80  
Tolerance mm : ± 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 396  
guide sleeve  
travel mm : 2.99  
Tolerance mm : ± 0.10

Rated speed rpm : 550  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1350  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 274.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1135  
Tolerance 1/min : ± 5

rack travel mm : -7.60  
Rated speed rpm : 1240  
Tolerance 1/min : ± 15

rack travel mm : -11.10  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 251.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : < -5.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : -7.00  
Tolerance mm : ± 0.10

rack travel mm : -9.50  
Rated speed rpm : 365  
Tolerance 1/min : ± 20

---

#### TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

H25

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -3.65  
Tolerance mm : ± 0.30

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560  
rack travel mm : -1.25  
Tolerance mm : ± 0.15

Pressure hPa : 320  
rack travel mm : -2.75  
Tolerance mm : ± 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 225

Check  
speed 1/min : > 80

Check  
speed 1/min : < 245

---

#### FUEL DELIVERY CHARACTERISTICS

---

#### Aneroid pressure

hPa : 1000  
Rated speed rpm : 1050

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : -7.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 994  
Injection pump  
Pump designation : PES6P120A320RS7344  
EP type number : 0 412 726 914  
Governor  
Governor design. : RGV275...1000PA1161  
Governor no. : 0 421 814 100  
Cust. part No. : CCEP 5143A 66-231

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 062045 E/41  
Power KW : 249.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 071  
Inlet press. bar : 2.5  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

H27

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 11.00  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
°NW after s.o.d. : -0.15  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1  
Beginning of delivery differende  
betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60  
Tolerance mm : +- 0.05

---

BASIC SETTING

Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -7.70  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1086  
guide sleeve  
travel mm : 8.09  
Tolerance mm : +- 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.66

Tolerance mm : +- 0.25

Rated speed rpm : 793  
guide sleeve  
travel mm : 6.00  
Tolerance mm : +- 0.25

Rated speed rpm : 343  
guide sleeve  
travel mm : 2.33  
Tolerance mm : +- 0.25

Rated speed rpm : 393  
guide sleeve  
travel mm : 2.95  
Tolerance mm : +- 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.72  
Tolerance mm : +- 0.25

Rated speed rpm : 1410  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1235

Rack travel in mm : 11.70  
Tolerance mm : +- 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1080  
Tolerance 1/min : ± 5

rack travel mm : -8.60  
Rated speed rpm : 1215  
Tolerance 1/min : ± 15

rack travel mm : -12.10  
Tolerance mm : ± 0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : < -5.70

#### Testing:

Rated speed rpm : 300  
rack travel mm : -7.70  
Tolerance mm : ± 0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

Rated speed rpm : 500

J01

Pressure hPa : -  
rack travel mm : -3.35  
Tolerance mm : ± 0.30

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320  
rack travel mm : -2.65  
Tolerance mm : ± 0.15

Pressure hPa : 640  
rack travel mm : -0.70  
Tolerance mm : ± 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 225

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 245

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 284.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : ± 0.75



Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : -7.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 846 079  
Injection pump  
Pump designation : PE6P120A320RS8051  
EP type number : 0 412 826 037  
Governor  
Governor design. : RQV300...1050PA1141  
Governor no. : 0 421 814 091  
Cust. part No. : 11031994 Ppe = 082

Customer-spec. information  
Customer : VCE  
Motor : TD122KFE  
Power KW : 297.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 078  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 145  
Tolerance l/h : ± 20.0  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 11.00  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.10  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 325

Rack travel in mm : 3.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131

guide sleeve  
travel mm : 8.63  
Tolerance mm : + 0.15

Rated speed rpm : 325

guide sleeve  
travel mm : 2.04  
Tolerance mm : + 0.20

Rated speed rpm : 1038  
guide sleeve  
travel mm : 7.03  
Tolerance mm : + 0.25

Rated speed rpm : 490  
guide sleeve  
travel mm : 4.65  
Tolerance mm : + 0.25

Rated speed rpm : 1300  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1190

Rack travel in mm : 12.20  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 122.0  
tolerance degree : + 4.0

RATED SPEED  
 rack travel mm : 12.10  
 Rated speed rpm : 1120  
 Tolerance 1/min : + 5  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1180  
 Tolerance 1/min : + 15  
  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1260

---

LOW IDLE

control lever  
 position degree : 64.0  
 tolerance degree : + 4.0

control lever  
 position degree : 12.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
 CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325  
 rack travel mm : 3.60  
 Tolerance mm : + 0.10

Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 13.10  
 Tolerance mm : + 0.05

Rated speed rpm : 700  
 rack travel mm : 12.40  
 Tolerance mm : + 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500

J05

Pressure hPa : 1500  
 rack travel mm : 14.00  
 Tolerance mm : + 0.25

Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : 10.00  
 Tolerance mm : + 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 850  
 rack travel mm : 2.90  
 Tolerance mm : + 0.20

Pressure hPa : 300  
 rack travel mm : 0.25  
 Tolerance mm : + 0.05

---

Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : > 230

Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : > 250

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 269.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 14.0

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 188.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 3.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 946 027  
  
Injection pump  
Pump designation : PES6P120A320RS8047  
EP type number : 0 412 926 029  
  
Governor  
Governor design. : RQV275...1250PA1312K  
Governor no. : 0 421 815 966  
  
Cust. part No. : CCEP 5160A 66-244

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 06.02.26L71  
Power KW : 141.7

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 078  
  
Inlet press. bar : 2.5  
  
Overflow quantity  
min. l/h : 145  
Tolerance l/h : ± 20.0  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 11.00  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
  
°NW after s.o.d. : -0.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1  
  
Beginning of delivery difference  
betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference °CS : 3.25

---

CRT ZERO POSITION

Rack travel in mm : 12.10  
Tolerance mm : ± 0.05

---

BASIC SETTING

Rated speed rpm : 1250

Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : -7.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1340

guide sleeve  
travel mm : 9.96  
Tolerance mm : ± 0.15

J08

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.52  
Tolerance mm : ± 0.20

Rated speed rpm : 923  
guide sleeve  
travel mm : 6.76  
Tolerance mm : ± 0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.92  
Tolerance mm : ± 0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1430

Rack travel in mm : 11.10  
Tolerance mm : ± 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 295.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : -1.00

Rated speed rpm : 1330  
Tolerance 1/min : + 15  
  
rack travel mm : -8.10  
Rated speed rpm : 1470  
Tolerance 1/min : + 5  
  
rack travel mm : -11.60  
Tolerance mm : + 0.55  
Rated speed rpm : 1600

---

LOW IDLE

control lever  
position degree : 241.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
  
CRT mm min. : < -5.80

Testing:

Rated speed rpm : 325  
rack travel mm : -7.20  
Tolerance mm : + 0.10

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 1250  
  
Rated speed rpm : 650  
rack travel mm : -2.10  
Tolerance mm : + 0.10

Rated speed rpm : 350  
rack travel mm : -3.25  
Tolerance mm : + 0.25

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 1600  
Tolerance mm : + 0.10

Rated speed rpm : 500  
Pressure hPa : -

J09

rack travel mm : -4.70  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250  
  
Pressure hPa : 240  
rack travel mm : -3.10  
Tolerance mm : + 0.20  
  
Pressure hPa : 520  
rack travel mm : -1.20  
Tolerance mm : + 0.05

---

Start interlock

Rated speed rpm : > 175  
Rated speed rpm : < 240

Check  
speed 1/min : > 155  
Check  
speed 1/min : < 260

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

rack travel mm : -3.25  
Tolerance mm : + 0.25

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100



Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : -7.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.02.98  
Test oil : ISO 4113  
Combination No. : 9 400 087 504  
Injection pump  
Pump designation : PES5P120A720LS7453  
EP type number : F 000 400 203  
Governor  
Governor design. : RQV300...950PA1264  
Governor no. : 9 420 080 393  
Cust. part No. : 0270740002

Customer-spec. information  
Customer : HBB  
Motor : OM 449 LA-EUROII  
Power KW : 235.4

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.3  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 21.00  
Firing order : 1- 3- 5- 4- 2  
Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 950  
Rack travel in mm : 13.60  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 265.0  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.45  
Tolerance mm : + 0.25

Rated speed rpm : 1050  
guide sleeve  
travel mm : 7.80  
Tolerance mm : + 0.10

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.75  
Tolerance mm : + 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.55  
Tolerance mm : + 0.25

Rated speed rpm : 1165  
guide sleeve  
travel mm : 9.45  
Tolerance mm : + 0.25

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1120

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 115.0  
tolerance degree : + 6.0

RATED SPEED  
rack travel mm : 12.55  
Rated speed rpm : 1035  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1140  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 10.00

Testing:

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.10

Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.60  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 14.00  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 14.00  
Tolerance mm : ± 0.05

Rated speed rpm : 850  
rack travel mm : 13.90  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.60  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 500  
rack travel mm : 1.05  
Tolerance mm : ± 0.15

Pressure hPa : 900  
rack travel mm : 2.60  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check speed 1/min : > 80

J13

Check speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 296.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 800  
rack travel mm : 14.00  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.11.97  
Test oil : ISO 4113  
Combination No. : F 000 409 007  
Injection pump  
Pump designation : PES6P110A720RS3389  
EP type number : F 000 400 002  
Governor  
Governor design. : RQV300...1300PA1343K  
Governor no. : F 000 420 500  
Cust. part No. : 0280743002

Customer spec. information  
Customer : MEB  
Motor : OM366LA-EURO II  
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.3  
Test nozzle holder assembly : 1 688 901 101  
Opening pressure bar : 208.5  
Tolerance bar : + 1.5  
Test Lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.30  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10  
Rack travel in mm : 21.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 14.30  
Tolerance mm : + 0.05  
Del. quantity cm3/1000 strokes : 122.0  
Tolerance cm3/1000 strokes : + 1.0  
Check tolerance cm3/1000S. : + 4.0  
Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 300

Rack travel in mm : 5.50  
 Tolerance mm : + 0.20

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350  
 guide sleeve  
 travel mm : 8.50  
 Tolerance mm : + 0.10

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.05  
 Tolerance mm : + 0.25

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 3.05  
 Tolerance mm : + 0.25

Rated speed rpm : 700  
 guide sleeve  
 travel mm : 4.35  
 Tolerance mm : + 0.25

Rated speed rpm : 1780  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : + 0.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure  
 hPa : 1000

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 122.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

---

CONTROL LEVER

control lever  
 position degree : 109.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.30  
 Rated speed rpm : 1350  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1515  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1700

---

LOW IDLE

control lever  
 position degree : 64.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
 CRT mm min. : > 6.00

Testing:

Rated speed rpm : 300  
 rack travel mm : 5.50  
 Tolerance mm : + 0.20

Rated speed rpm : 425

---

**TORQUE CONTROL**

Rated speed rpm : 1300  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -

**MEASUREMENT**

Rated speed rpm : 500  
Pressure hPa : 300  
rack travel mm : 1.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 600  
rack travel mm : 3.60  
Tolerance mm :  $\pm$  0.10

---

**Start interlock**

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  180

Check speed 1/min :  $>$  80  
Check speed 1/min :  $<$  220

---

---

**FUEL DELIVERY CHARACTERISTICS**

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---



Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.00  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.10.97  
Test oil : ISO 4113  
Combination No. : F 000 409 104  
Injection pump  
Pump designation : PES6P120A12ORS7451  
EP type number : F 000 400 202  
Governor  
Governor design. : RQV350...1100PA1375K  
Governor no. : F 000 420 501

Cust. part No. :

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 093  
Inlet press. bar : 1.5  
Overflow quantity  
min. l/h : 110  
Tolerance l/h : + 20.0  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 3.30  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 20.50  
Tolerance mm : + 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75  
Start of delivery mark  
°NW after s.o.d. : 7.70  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30  
 Tolerance mm : ± 0.05

---

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 164.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 4.80  
 Tolerance mm : ± 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.0

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159  
 guide sleeve  
 travel mm : 10.27  
 Tolerance mm : ± 0.15

Rated speed rpm : 350  
 guide sleeve  
 travel mm : 1.93  
 Tolerance mm : ± 0.20

Rated speed rpm : 710  
 guide sleeve  
 travel mm : 5.79  
 Tolerance mm : ± 0.25

Rated speed rpm : 420  
 guide sleeve  
 travel mm : 4.28  
 Tolerance mm : ± 0.25

Rated speed rpm : 1380  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1200

Rack travel in mm : 12.30  
 Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 1500

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 164.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 69.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 123.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.30  
 Rated speed rpm : 1145  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1240  
 Tolerance 1/min : ± 15

Check  
speed 1/min : + 20  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

control lever  
position degree : 21.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.70

Testing:

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm : + 0.10

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.30  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 12.95  
Tolerance mm : + 0.10

Rated speed rpm : 900  
rack travel mm : 13.05  
Tolerance mm : + 0.15

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm : + 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

J21

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 13.30  
Tolerance mm : + 0.05

Rated speed rpm : 1100  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 170  
rack travel mm : 1.20  
Tolerance mm : + 0.20

Pressure hPa : 330  
rack travel mm : 2.20  
Tolerance mm : + 0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

---

rack travel mm : 13.05  
Tolerance mm : + 0.15

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.11.97  
Test oil : ISO 4113  
Combination No. : F 000 409 105  
Injection pump  
Pump designation : PES6P120A12ORS7350  
EP type number : 0 412 726 921  
Governor  
Governor design. : RQV400...1150PA1376K  
Governor no. : F 000 420 502

Cust. part No. : 3933298

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 093  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holder assembly : 1 688 901 103  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 12.50  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Start of delivery mark  
°NW after s.o.d. : 5.75  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 14.00  
Tolerance mm : ± 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 167.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 420

Rack travel in mm : 6.10  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1250  
guide sleeve  
travel mm : 7.10  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.50  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
guide sleeve  
travel mm : 4.50  
Tolerance mm : ± 0.20

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.30  
Tolerance mm : ± 0.20

Rated speed rpm : 1500  
guide sleeve  
travel mm : 9.40  
Tolerance mm : ± 0.20

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1300

Tolerance 1/min : ± 15  
Check  
speed 1/min : ± 20

rack travel mm : 4.00  
Rated speed rpm : 1465

Tolerance 1/min : ± 5  
Check  
speed 1/min : ± 10

rack travel mm : 0.50  
Tolerance mm : ± 0.50

Rated speed rpm : 1550

---

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 6.0

Control lever difference  
Grad : 46.0

tolerance degree :  $\pm$  6.0  
Setting point w/out bumper spring

Rated speed rpm : 300  
CRT mm min. :  $>$  8.90

Testing:

Rated speed rpm : 420  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 420

---

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150  
Pressure hPa : 800  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 1150  
Pressure hPa : 250  
rack travel mm : 1.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 470  
rack travel mm : 3.10  
Tolerance mm :  $\pm$  0.05

---

Start interlock

J25

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  325

Check speed 1/min :  $>$  80  
Check speed 1/min :  $<$  335

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

LOW IDLE



Rated speed rpm : 420  
Rack travel in mm : 6.10  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.11.97  
Test oil : ISO 4113

Combination No. : F 000 409 106

Injection pump  
Pump designation : PES6P120A120RS7416  
EP type number : 0 412 726 959

Governor  
Governor design. : RQV400...1250PA1378K  
Governor no. : F 000 420 503

Cust. part No. : 3933297

Customer-spec. information  
Customer : CUMMINS  
Motor : 69TA-A  
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : +- 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

J27

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 3.60  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery mark

\*NW after s.o.d. : 6.25  
Tolerance : +- 0.50  
Check  
tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1329  
guide sleeve  
travel mm : 7.83  
Tolerance mm : + 0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.44  
Tolerance mm : + 0.20

Rated speed rpm : 939  
guide sleeve  
travel mm : 5.18  
Tolerance mm : + 0.25

Rated speed rpm : 640  
guide sleeve  
travel mm : 3.56  
Tolerance mm : + 0.25

Rated speed rpm : 1690  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : + 6.0

RATED SPEED

rack travel mm : 12.60  
Rated speed rpm : 1325  
Tolerance 1/min : + 15

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 6.0

Control lever difference  
Grad : 46.0  
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 300  
CRT mm min. : > 5.80

Testing:

Rated speed rpm : 420  
rack travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 425

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.65  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 11.85  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
rack travel mm : 11.60  
Tolerance mm : ± 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 800  
rack travel mm : 13.65  
Tolerance mm : ± 0.05

Rated speed rpm : 1250  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 1250  
Pressure hPa : 180  
rack travel mm : 1.10  
Tolerance mm : ± 0.05

Pressure hPa : 340  
rack travel mm : 3.30  
Tolerance mm : ± 0.20

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check speed 1/min : > 80  
Check speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 11.60  
Tolerance mm : ± 0.20

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 14.10  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

---

LOW IDLE

Rated speed rpm : 420  
Rack travel in mm : 6.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.01.98  
Test oil : ISO 4113  
Combination No. : F 000 409 201  
Injection pump  
Pump designation : PES6A95D410RS2918  
EP type number : F 000 400 400  
Governor  
Governor design. : RQV300...1300AB1324  
Governor no. : F 000 420 301

Cust. part No. : 3760747202

Customer-spec. information  
Customer : MBB  
Motor : OM 366 A  
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 0 681 343 009  
Opening pressure bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

K03

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 3.05  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 11.25  
Tolerance mm : + 0.05  
Del. quantity cm3/1000 strokes : 81.0  
Tolerance cm3/1000 strokes : + 1.0  
Check tolerance cm3/1000s. : + 3.0  
Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 300

Rack travel in mm : 9.20  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500  
 guide sleeve  
 travel mm : 8.95  
 Tolerance mm : + 0.05

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.05  
 Tolerance mm : + 0.25

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 2.55  
 Tolerance mm : + 0.25

Rated speed rpm : 750  
 guide sleeve  
 travel mm : 4.65  
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1460

Rack travel in mm : 16.50

K04

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 81.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
 position degree : 111.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.20  
 Rated speed rpm : 1365  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1505  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1640

LOW IDLE

control lever  
 position degree : 73.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.80

Testing:  
 Rated speed rpm : 300

rack travel mm : 9.20  
Tolerance mm : + 0.10  
Rated speed rpm : 585

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.25  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 12.05  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 11.50  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 12.05  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 12.00  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 550  
rack travel mm : 1.80  
Tolerance mm : + 0.10

Pressure hPa : 350  
rack travel mm : 0.80  
Tolerance mm : + 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check speed 1/min : > 80  
Check speed 1/min : < 240

K05

---

FUEL DELIVERY CHARACTERISTICS

---

rack travel mm : 11.50  
Tolerance mm : + 0.05

---

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 42.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 10.0

---

LOW IDLE

Rated speed rpm : 300



Rack travel in mm : 9.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 400 866 214  
  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -4  
EP type number : 9 410 230 030  
  
Governor  
Governor design. : RSV450...1100A0C2190  
: -84R  
Governor no. : 0 420 233 323  
  
Cust. part No. : 3921095

Customer-spec. information  
Customer : CDC  
Motor : 6CT830  
Power KW : 134.2

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Test lines : 1 680 750 014

K07

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 2.85  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
  
Start of delivery blocking  
  
°NW after s.o.d. : 11.00  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 11.25  
Tolerance mm : + 0.05

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 104.5

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : +- 3.0

---

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 450

Rack travel in mm : 5.80  
 Tolerance mm : +- 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 18.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : +- 0.20

governor spring  
 pre-tension  
 click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 104.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 3.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.5

CONTROL LEVER

control lever  
 position degree : 103.0  
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.20  
 Rated speed rpm : 1145  
 Tolerance 1/min : +- 5

rack travel mm : 4.00  
 Rated speed rpm : 1225  
 Tolerance 1/min : +- 5

rack travel mm : 0.85  
 Tolerance mm : +- 0.55  
 Rated speed rpm : 1350

rack travel mm : 4.00  
 Rated speed rpm : 1230  
 Tolerance 1/min : +- 15

LOW IDLE

control lever  
 position degree : 85.0  
 tolerance degree : +- 4.0

Control lever difference  
 Grad : 18.0  
 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
 rack travel mm : 5.30  
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT ~~mm~~ min. : > 19.00

Testing:

Rated speed rpm : 450  
rack travel mm : 5.80  
Tolerance mm : ± 0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.25  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 12.10  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 5.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5

K09

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113

Combination No. : 0 402 076 817

Injection pump  
Pump designation : PES6P120A72ORS3367  
EP type number : 0 412 026 788

Governor  
Governor design. : RSV525...1000P2A640  
: -1  
Governor no. : 0 421 833 604

Cust. part No. : RE71286

---

Customer-spec. information  
Customer : DEERE  
Motor : 6081HT001  
Power kW : 186.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

K10

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : C-60-120-180-240  
: -300

## Start of delivery mark

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

---

## BASIC SETTING

Rated speed rpm : 1000

---

Rack travel in mm	:	13.00
Tolerance mm	:	+ 0.05

---

Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	174.5

---

Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	+ 1.0

---

Check tolerance	:	
cm <sup>3</sup> /1000S.	:	+ 3.0

---

Spread

---

Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	4.0

---

Check tolerance	:	
cm <sup>3</sup> /1000S.	:	6.5

---

Rated speed rpm	:	525
-----------------	---	-----

---

Rack travel in mm	:	5.10
Tolerance mm	:	+ 0.10
Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	26.5
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	+ 2.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	+ 4.5
Spread	:	
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	6.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever	:	
position degree	:	- 3
Rated speed rpm	:	800

---

Rack travel in mm	:	0.50
Tolerance mm	:	+ 0.20

---

governor spring	:	
pre-tension	:	
click setting x	:	3.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure	:	
hPa	:	1400
Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	174.5
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	+ 3.0
Spread	:	
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	6.5

---

CONTROL LEVER

control lever	:	
position degree	:	87.5
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	12.00
Rated speed rpm	:	1070
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1115
Tolerance 1/min	:	+ 5

rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1200

rack travel mm	:	4.00
Rated speed rpm	:	1115
Tolerance 1/min	:	+ 15

---

LOW IDLE

control lever	:	
position degree	:	70.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	525
rack travel mm	:	4.60
Tolerance mm	:	+ 0.10

Rated speed rpm : 100  
CRT min. : > 19.00

Testing:

Rated speed rpm : 525  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.00  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 13.80  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1400

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.25  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 975  
rack travel mm : 13.40  
Tolerance mm : ± 0.20

Pressure hPa : 830  
rack travel mm : 12.70  
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 525  
Rack travel in mm : 5.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.98  
Test oil : ISO 4113

Combination No. : 0 402 736 906

Injection pump  
Pump designation : PES6P120A12ORS7416  
EP type number : 0 412 726 959

Governor  
Governor design. : RQV400...1250PA1060  
: -4K  
Governor no. : 0 421 815 514

Cust. part No. : 3928146

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power Kw : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : + 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 015

K13

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0

Prestroke mm : 3.60  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*NW after s.o.d. : 6.25  
Tolerance : + 0.50  
Check  
tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 420

Rack travel in mm : 6.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1329  
guide sleeve  
travel mm : 7.83  
Tolerance mm : + 0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.44  
Tolerance mm : + 0.20

Rated speed rpm : 939  
guide sleeve  
travel mm : 5.18  
Tolerance mm : + 0.25

Rated speed rpm : 640  
guide sleeve  
travel mm : 3.56

Tolerance mm : + 0.25

Rated speed rpm : 1690  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : VH  
Rated speed rpm : 1390

Rack travel in mm : 12.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.60  
Rated speed rpm : 1325  
Tolerance 1/min : + 15

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 73.5  
tolerance degree : ± 4.0

Control lever difference  
Grad : 46.5  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
CRT mm min. : > 5.80

Testing:

Rated speed rpm : 420  
rack travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.65  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 11.85  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
rack travel mm : 11.60  
Tolerance mm : ± 0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200

Rated speed rpm : 1250  
Pressure hPa : -  
rack travel mm : 10.30  
Tolerance mm : ± 0.20

##### MEASUREMENT

Rated speed rpm : 1250  
Pressure hPa : 375  
rack travel mm : 12.50  
Tolerance mm : ± 0.30

K15

Pressure hPa : 260  
rack travel mm : 11.30  
Tolerance mm : ± 0.20

---

#### Start interlock

Rated speed rpm : > 200  
Rated speed rpm : < 340

Check  
speed 1/min : > 190  
Check  
speed 1/min : < 360

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 11.60  
Tolerance mm : ± 0.20

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 14.10  
Tolerance mm : ± 0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 25.0

---

LOW IDLE

Rated speed rpm : 420  
  
Rack travel in mm : 6.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 611  
Injection pump  
Pump designation : PES6P120A32ORS7372  
EP type number : 0 412 726 940  
Governor  
Governor design. : RQV250...1400PA1279K  
Governor no. : 0 421 815 508

Cust. part No. : 3866783

## Customer-spec. information

Customer : CDC  
Motor : 6BTA  
Power kW : 235.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

K17

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*MW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 7.00  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1455  
guide sleeve  
travel mm : 9.16  
Tolerance mm : + 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.39  
Tolerance mm : + 0.20

Rated speed rpm : 931  
guide sleeve  
travel mm : 5.67  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.18  
Tolerance mm : + 0.25

Rated speed rpm : 1860  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure

hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 121.5

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1465

Tolerance 1/min : + 5

rack travel mm : 6.80  
Rated speed rpm : 1580

Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50

Rated speed rpm : 1725

LOW IDLE

control lever  
position degree : 73.0

tolerance degree : + 4.0

Control lever difference  
Grad : 48.5

tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 8.60

Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : + 0.20

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 13.45  
Tolerance mm : + 0.05

Rated speed rpm : 1000  
rack travel mm : 13.20  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 13.00  
Tolerance mm : + 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1400  
Pressure hPa : 1200

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : 9.65  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1400  
Pressure hPa : 620  
rack travel mm : 12.30  
Tolerance mm : + 0.20

Pressure hPa : 280  
rack travel mm : 10.65  
Tolerance mm : + 0.20

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 240

Check speed 1/min : > 80  
Check speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 13.00  
Tolerance mm : + 0.20

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 25.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.00  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.02.98  
Test oil : ISO 4113  
Combination No. : 9 400 030 734  
Injection pump  
Pump designation : PES4A95D320/3RS2880.  
EP type number : 9 410 037 214  
Governor  
Governor design. : RSV500...1100AOC847R  
Governor no. : 9 420 034 713

Cust. part No. : 3930153

Customer-spec. information  
Customer : CDC  
Motor : 4BT3.9  
Power kW : 74.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : + 1.0  
Prestroke mm : 2.45  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Start of delivery blocking  
\*NW after s.o.d. : 7.50  
Tolerance : + 0.50  
Check  
tolerance \*NW : + 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.55  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.5



Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

---

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 500

Rack travel in mm : 5.55  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 20.5

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 3.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 107.5

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
 position degree : 101.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50  
 Rated speed rpm : 1165  
 Tolerance 1/min : + 5

rack travel mm : 6.00  
 Rated speed rpm : 1230  
 Tolerance 1/min : + 5

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1375

---

LOW IDLE

control lever  
 position degree : 81.0  
 tolerance degree : + 4.0

Control lever difference  
 Grad : 20.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 500  
 rack travel mm : 5.05  
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500  
 rack travel mm : 5.55  
 Tolerance mm : + 0.10

---

**TORQUE CONTROL**

Rated speed rpm : 1100  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.50  
Tolerance mm : ± 0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 750  
Pressure hPa : 1000

Rated speed rpm : 750  
Pressure hPa : -  
rack travel mm : 12.80  
Tolerance mm : ± 0.10

**MEASUREMENT**

Rated speed rpm : 750  
Pressure hPa : 650  
rack travel mm : 13.60  
Tolerance mm : ± 0.20

---

**FUEL DELIVERY CHARACTERISTICS**

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

---

**STARTING FUEL DELIVERY**

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 15.0

---

---

**LOW IDLE**

Rated speed rpm : 500  
Rack travel in mm : 5.55  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.98  
Test oil : ISO 4113  
Combination No. : 0 401 446 150  
Injection pump  
Pump designation : PE6R130/720RS1506  
EP type number : 0 411 436 002  
Governor  
Governor design. : RQV250...1050R4K  
Governor no. : 0 421 415 003  
Cust. part No. : 865 020 P02 v. 08/94

Customer-spec. information

Customer : PENTA  
Motor : TAMD163 P-A  
Power KW : 553.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Vibration damper (RoBo diaphragm) : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 078  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
Overflow quantity min. L/h : 120  
Tolerance L/h : + 20.0  
Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.45  
Tolerance mm : + 0.05

Check tolerance mm : + 0.10

Rack travel in mm : 8.70  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 14.40  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 450.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 13.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 17.0

---

Rated speed rpm : 250

Rack travel in mm : 6.65  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 7.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 11.0

Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106  
guide sleeve  
travel mm : 9.18  
Tolerance mm : + 0.25

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.26  
Tolerance mm : + 0.25

Rated speed rpm : 895

guide sleeve  
travel mm : 6.42  
Tolerance mm : + 0.25

Rated speed rpm : 310  
guide sleeve  
travel mm : 2.00  
Tolerance mm : + 0.25

Rated speed rpm : 360  
guide sleeve  
travel mm : 2.41  
Tolerance mm : + 0.25

Rated speed rpm : 570  
guide sleeve  
travel mm : 3.54  
Tolerance mm : + 0.25

Rated speed rpm : 1360  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1205

Rack travel in mm : 11.00  
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 2200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 450.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 13.0

Check tolerance  
cm<sup>3</sup>/1000S. : 17.0

CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree : + 4.0

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 13.40  
Rated speed rpm : 1105  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

control lever  
position degree : 20.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 7.70

#### Testing:

Rated speed rpm : 250  
rack travel mm : 6.65  
Tolerance mm : ± 0.10

Rated speed rpm : 380

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.40  
Tolerance mm : ± 0.05

Rated speed rpm : 850  
rack travel mm : 13.20  
Tolerance mm : ± 0.15

Rated speed rpm : 975  
rack travel mm : 14.30  
Tolerance mm : ± 0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
Pressure hPa : 2200  
rack travel mm : 14.40  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.70  
Tolerance mm : ± 0.15

#### MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 1580  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

Pressure hPa : 400  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 2200  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 412.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 7.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 19.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 385.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

---

LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 6.65  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 7.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 11.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.02.98  
Test oil : ISO 4113  
Combination No. : 0 401 846 994

Injection pump  
Pump designation : PE6P110A32ORS3374  
EP type number : 0 411 816 800

Governor  
Governor design. : RQV300...1100PA1182  
Governor no. : 0 421 814 110

Cust. part No. : 11032709 P02 v.03.97

Customer-spec. information

Customer : VCE  
Motor : TD63KBE  
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper  
(RoBo diaphragm) : 4.2

Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 2.5  
Tolerance bar : + 0.1

Overflow quantity min. l/h : 100  
Tolerance l/h : + 20.0

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 2.45  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 11.15  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50  
Check tolerance °NW : + 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 625

---

Rack travel in mm : 14.35  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 300

Rack travel in mm : 5.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1172  
guide sleeve  
travel mm : 8.69  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.48

L01

Tolerance mm : + 0.20

Rated speed rpm : 822  
guide sleeve  
travel mm : 5.40  
Tolerance mm : + 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.11  
Tolerance mm : + 0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1240

Rack travel in mm : 11.30  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 625  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 49.0  
tolerance degree : + 4.0

control lever  
position degree : 117.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 13.00



Rated speed rpm : 1160  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1275  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1330

---

#### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree : ± 4.0

control lever  
position degree : 18.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 8.60

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.90  
Tolerance mm : ± 0.10

Rated speed rpm : 370

---

#### TORQUE CONTROL

Rated speed rpm : 625  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

Rated speed rpm : 1025  
rack travel mm : 14.00  
Tolerance mm : ± 0.10

Rated speed rpm : 820  
rack travel mm : 14.30  
Tolerance mm : ± 0.10

Rated speed rpm : 625  
rack travel mm : 14.60  
Tolerance mm : ± 0.10

L02

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 625  
Pressure hPa : 1500  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

Rated speed rpm : 625  
Pressure hPa : -  
rack travel mm : 11.15  
Tolerance mm : ± 0.10

#### MEASUREMENT

Rated speed rpm : 625  
Pressure hPa : 610  
rack travel mm : 2.50  
Tolerance mm : ± 0.20

Pressure hPa : 90  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1025  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

rack travel mm : 14.30  
Tolerance mm : ± 0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 625  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.20  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.02.98  
Test oil : ISO 4113

Combination No. : 0 401 876 345

Injection pump  
Pump designation : PE6P120B320RS3301  
EP type number : 0 411 826 819

Governor  
Governor design. : RSV250...1100POA656  
Governor no. : 0 421 833 574

Cust. part No. : 3826519 P02 v. 12/96

Customer-spec. information

Customer : PENTA  
Motor : TAMD 102 D  
Power KW : 315.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper  
(RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Overflow quantity min. l/h : 110  
Tolerance l/h : + 20.0

Test nozzle holder assembly : 1 688 901 019

Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 3.45  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 8.30  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.50  
Check tolerance °NW : + 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 13.20  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 250

Rack travel in mm : 6.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

L05

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

CONTROL LEVER

control lever  
position degree : 48.0  
tolerance degree : + 4.0

control lever  
position degree : 98.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.20  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1230  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : + 15

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

control lever  
position degree : 25.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 5.70  
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 250  
rack travel mm : 6.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 395  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.20  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 13.20  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.20  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm : ± 0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 1120  
rack travel mm : 4.20  
Tolerance mm : ± 0.15

Pressure hPa : 160  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.00  
Tolerance mm : ± 0.50

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 6.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.98  
Test oil : ISO 4113

Combination No. : 0 401 876 761

Injection pump  
Pump designation : PE6P120B320RS3206  
EP type number : 0 411 826 820

Governor  
Governor design. : RSV250...900P4A657  
Governor no. : 0 421 833 575

Cust. part No. : 3826529 P01 v. 10/96

Customer-spec. information  
Customer : VOLVO-PENTA  
Motor : TAMD122 A  
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper  
(RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Overflow quantity min. l/h : 80  
Tolerance l/h : + 20.0

Test nozzle holder assembly : 1 688 901 019

Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 3.55  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 8.70  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.50  
Check tolerance \*NW : + 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 11.40  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 250

Rack travel in mm : 5.10  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

L09

governor spring  
pre-tension  
click setting x : 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure

hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree : + 4.0

control lever  
position degree : 105.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 960  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1130

rack travel mm : 4.00  
Rated speed rpm : 1010  
Tolerance 1/min : + 15

---

LOW IDLE

control lever  
position degree : 73.0



tolerance degree : ± 4.0

control lever  
position degree : 23.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 250  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 410  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm : ± 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 700  
Pressure hPa : 1500  
rack travel mm : 11.40  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
Pressure hPa : -  
rack travel mm : 8.70  
Tolerance mm : ± 0.20

#### MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 725  
rack travel mm : 2.30  
Tolerance mm : ± 0.20

Pressure hPa : 240  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

L10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.70  
Tolerance mm : ± 0.20

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 5.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.02.98  
Test oil : ISO 4113

Combination No. : 0 401 876 777

Injection pump  
Pump designation : PE6P120B320RS3261  
EP type number : 0 411 826 821

Governor  
Governor design. : RSV250...1100POA655  
Governor no. : 0 421 833 573

Cust. part No. : 3826513 P01 v.10.96

Customer-spec. information  
Customer : PENTA  
Motor : TAMD 102 A  
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper  
(RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Overflow quantity min. L/h : 100  
Tolerance L/h : ± 20.0

Test nozzle holder assembly : 1 688 901 019

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 8.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance \*NW : ± 0.75

Start of delivery mark  
Tolerance : ± 0.50  
Check tolerance \*NW : ± 0.75

Barrel no. : 1

---

**BASIC SETTING**

Rated speed rpm : 700

---

Rack travel in mm : 12.15  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

**Spread**

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 250

Rack travel in mm : 6.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

**Spread**

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

**(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR**

---

**GUIDE SLEEVE POSITION**

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

L12

governor spring  
pre-tension  
click setting x : 2.25

---

**FULL LOAD DELIVERY AT FULL LOAD STOP**

Rated speed rpm : 700  
Aneroid pressure

hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

**Spread**

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

**CONTROL LEVER**

control lever  
position degree : 47.0  
tolerance degree : + 4.0

control lever  
position degree : 97.0  
tolerance degree : + 4.0

**RATED SPEED**

rack travel mm : 11.10  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1210  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1220  
Tolerance 1/min : + 15

---

**LOW IDLE**

control lever  
position degree : 73.0

tolerance degree : +- 4.0

control lever  
position degree : 23.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
rack travel mm : 6.00  
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 250  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : +- 30

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.15  
Tolerance mm : +- 0.05

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.15  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm : +- 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 3.20  
Tolerance mm : +- 0.15

Pressure hPa : 140  
rack travel mm : 0.25  
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm : +- 1.00

LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 6.50  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 401 876 808  
  
Injection pump  
Pump designation : PEGP120A520RS3355  
EP type number : 0 411 826 814  
  
Governor  
Governor design. : RSV300...1100P1A604  
Governor no. : 0 421 833 485  
  
Cust. part No. : 3825516 P03 v. 11/95

Customer-spec. information  
Customer : PENTA  
Motor : TD1030ME  
Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 077  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 85  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 9.55  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.50  
 Tolerance mm : + 0.05

---

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 156.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 300

Rack travel in mm : 4.70  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 23.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.50

governor spring  
 pre-tension  
 click setting x : 4.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 156.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

---

CONTROL LEVER

control lever  
 position degree : 62.0  
 tolerance degree : + 4.0

control lever  
 position degree : 112.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50  
 Rated speed rpm : 1135  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1190  
 Tolerance 1/min : + 15

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1300

rack travel mm : 4.00  
 Rated speed rpm : 1195  
 Tolerance 1/min : + 15

---

LOW IDLE

control lever  
 position degree : 76.0  
 tolerance degree : + 4.0

control lever  
 position degree : 26.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 300  
rack travel mm : 4.70  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 380  
Tolerance 1/min : ± 30

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.50  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 12.50  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.50  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.55  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 555  
rack travel mm : 2.30  
Tolerance mm : ± 0.15

Pressure hPa : 140  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

L16

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.98  
Test oil : ISO 4113  
Combination No. : 0 401 876 810  
Injection pump  
Pump designation : PE6P120A32ORS3359  
EP type number : 0 411 826 815  
Governor  
Governor design. : RSV325...1200P1A615  
Governor no. : 0 421 833 503  
Cust. part No. : 3825515 P02 v. 10/95

---

Customer-spec. information  
Customer : PENTA  
Motor : TD 730ME  
Power kW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 077  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 220  
Tolerance l/h : ± 20.0  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

L17

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.35  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 9.40  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

---

## BASIC SETTING

Rated speed rpm : 1200

---



Rack travel in mm : 11.00  
 Tolerance mm : + 0.05

---

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 123.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

---

Speed

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 325

Rack travel in mm : 4.60  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 25.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
 Aneroid pressure  
 hPa : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 123.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

CONTROL LEVER

control lever  
 position degree : 70.0  
 tolerance degree : + 4.0

control lever  
 position degree : 120.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.00  
 Rated speed rpm : 1235  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1280  
 Tolerance 1/min : + 15

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1400

LOW IDLE

control lever  
 position degree : 80.0  
 tolerance degree : + 4.0

control lever  
 position degree : 30.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 4.10  
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 325  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.40  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 490  
rack travel mm : 1.10  
Tolerance mm : ± 0.15

Pressure hPa : 290  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500

Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 4.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

End of test specification sheet

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 046 861  
  
Injection pump  
Pump designation : PE6P110A32ORS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQ325/1300PA1150  
Governor no. : 0 421 801 716

Cust. part No. : 1284420/4

---

Customer-spec. information  
Customer : DAF  
Motor : NS156M  
Power kW : 156.0

---

**TEST BENCH REQUIREMENTS**

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

L20

x inside diameter : 2.0  
x length mm : 600

---

**REMARKS**

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

**BEGINNING OF DELIVERY**

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

---

**BASIC SETTING**

Rated speed rpm : 1000

---

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR.

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1351  
guide sleeve  
travel mm : 6.37  
Tolerance mm : + 0.10

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.99  
Tolerance mm : + 0.10

Rated speed rpm : 1300  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 427  
guide sleeve  
travel mm : 3.54

Tolerance mm : + 0.10

Rated speed rpm : 590  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1570  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 650

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.85  
Rated speed rpm : 1345  
Tolerance 1/min : + 5  
Check  
speed 1/min : + 10

rack travel mm : 4.00  
Rated speed rpm : 1450  
Tolerance 1/min : + 15

Check  
speed 1/min : + 20  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

---

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. : > 5.90

Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 415

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 600  
Pressure hPa : -

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rack travel mm : 7.35  
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370  
rack travel mm : 10.75  
Tolerance mm : + 0.05

Pressure hPa : 200  
rack travel mm : 8.40  
Tolerance mm : + 0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

---

rack travel mm : 11.85  
Tolerance mm : + 0.05

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

---

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
ca3/1000S. : +- 5.0  
Spreed  
Tolerance  
ca3/1000 strokes : 12.0  
Check tolerance  
ca3/1000S. : 15.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump  
Pump designation : PES6P110A320RS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQ325...1250PA1370  
Governor no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information  
Customer : DAF  
Motor : NS177M  
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10  
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 149.5
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.5
<hr/>	

Rated speed rpm	: 325
<hr/>	
Rack travel in mm	: 4.40
Tolerance mm	: ± 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 26.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1292
guide sleeve	
travel mm	: 6.37
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 325
guide sleeve	
travel mm	: 1.99
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1000
guide sleeve	
travel mm	: 6.00
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 426

guide sleeve	
travel mm	: 3.48
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 590
guide sleeve	
travel mm	: 6.00
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1460
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: 109
<hr/>	
control lever	
position degree	: 109
Rated speed rpm	: 600
<hr/>	
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 149.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.5

CONTROL LEVER

control lever	
position degree	: 97.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.25
Rated speed rpm	: 1290
Tolerance 1/min	: ± 5
Check	
speed 1/min	: ± 10



rack travel mm : 4.00  
Rated speed rpm : 1370  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 415  
Tolerance 1/min : + 20

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.25  
Tolerance mm : + 0.05

Rated speed rpm : 1250  
rack travel mm : 12.25  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 12.25  
Tolerance mm : + 0.05

Rated speed rpm : 600

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Pressure hPa : -  
rack travel mm : 7.00  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430  
rack travel mm : 10.90  
Tolerance mm : + 0.05

Pressure hPa : 220  
rack travel mm : 8.10  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 076 821  
  
Injection pump  
Pump designation : PES6P120A72ORS3340  
EP type number : 0 412 026 773  
  
Governor  
Governor design. : RSV650...1050P8A566  
: -6  
Governor no. : 0 421 833 615  
  
Cust. part No. :

Customer-spec. information  
Customer : NH  
Motor : EP 040 B  
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 086  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089  
  
Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery blocking  
  
Check  
tolerance °NW : ± 0.30  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025  
  
Rack travel in mm : 13.35

Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 650

Rack travel in mm : 4.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067  
rack travel mm : 12.30

Rated speed rpm : 1097  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1300

Rated speed rpm : 1068  
rack travel mm : 12.30

Rated speed rpm : 1098  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1069  
rack travel mm : 12.30

Rated speed rpm : 1099  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1070  
rack travel mm : 12.30

Rated speed rpm : 1100  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1071  
rack travel mm : 12.30

Rated speed rpm : 1101  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1072  
rack travel mm : 12.30

Rated speed rpm : 1102  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

---

#### LOW IDLE

control lever  
position degree : 73.0

Setting point w/out bumper spring

Rated speed rpm : 650  
rack travel mm : 4.20  
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650  
rack travel mm : 4.70  
Tolerance mm : + 0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1025  
rack travel mm : 13.35  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 14.00  
Tolerance mm : + 0.10

M01

Rated speed rpm : 650  
rack travel mm : 14.05  
Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1600  
rack travel mm : 14.00  
Tolerance mm : + 0.15

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.90  
Tolerance mm : + 0.15

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 980  
rack travel mm : 12.25  
Tolerance mm : + 0.10

---

#### Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

rack travel mm : 14.05  
Tolerance mm : + 0.15

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 650  
Rack travel in mm : 4.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 646 617  
Injection pump  
Pump designation : PE6P130A320RS7282  
EP type number : 0 412 636 829  
Governor  
Governor design. : RQV300...900PA1059  
Governor no. : 0 421 314 049

Cust. part No. : 865851-P08 V.09.97

Customer-spec. information  
Customer : PENTA  
Motor : TAD 1230 P

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper  
(RoBo diaphragm) : 4.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 8.30  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.55  
 Tolerance mm : + 0.05

---

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 349.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

---

Spreed

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 300

Rack travel in mm : 4.00  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 928  
 guide sleeve  
 travel mm : 7.72  
 Tolerance mm : + 0.25

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.81  
 Tolerance mm : + 0.25

Rated speed rpm : 650  
 guide sleeve  
 travel mm : 5.16  
 Tolerance mm : + 0.25

Rated speed rpm : 315  
 guide sleeve  
 travel mm : 1.98  
 Tolerance mm : + 0.25

Rated speed rpm : 365  
 guide sleeve  
 travel mm : 2.54  
 Tolerance mm : + 0.25

Rated speed rpm : 420  
 guide sleeve  
 travel mm : 3.17  
 Tolerance mm : + 0.25

Rated speed rpm : 1210  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 980

Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
 Aneroid pressure  
 hPa : 2000

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 349.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

CONTROL LEVER

control lever  
 position degree : 61.0  
 tolerance degree : + 4.0

control lever  
 position degree : 117.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 915  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1100

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

control lever  
position degree : 18.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm : ± 0.10

rack travel mm : > 5.60  
Rated speed rpm : 200

Rated speed rpm : 365

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.55  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 11.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

M05

rack travel mm : 8.30  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1390  
rack travel mm : 2.90  
Tolerance mm : ± 0.20

Pressure hPa : 640  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000s. : 11.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.11.97  
Test oil : ISO 4113  
Combination No. : 0 402 646 623

Injection pump  
Pump designation : PE6P120A320RS7288  
: -10  
EP type number : 0 412 626 918

Governor  
Governor design. : RQV250...900PA1069  
: -1  
Governor no. : 0 421 814 070

Cust. part No. : 866141 P06 v. 11/97

Customer-spec. information  
Customer : PENTA  
Motor : TAD 1030V

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper  
(RoBo diaphragm) : 4.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 300  
Tolerance l/h : ± 20.0

Test nozzle holder assembly : 1 688 901 105

M07

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.45  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

Rated speed rpm : 250

Rack travel in mm : 7.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 949  
guide sleeve  
travel mm : 7.39  
Tolerance mm : + 0.25

Rated speed rpm : 250

guide sleeve  
travel mm : 1.12  
Tolerance mm : + 0.25

Rated speed rpm : 657  
guide sleeve  
travel mm : 5.07  
Tolerance mm : + 0.25

Rated speed rpm : 315  
guide sleeve  
travel mm : 1.98  
Tolerance mm : + 0.25

Rated speed rpm : 365  
guide sleeve  
travel mm : 2.63  
Tolerance mm : + 0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 3.17  
Tolerance mm : + 0.25

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 9.00  
Tolerance mm : + 3.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

**CONTROL LEVER**

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

**RATED SPEED**

rack travel mm : 12.45  
Rated speed rpm : 935  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1075  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1150

---

**LOW IDLE**

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

control lever  
position degree : 24.0  
tolerance degree : ± 4.0

**Setting point w/out bumper spring**

Rated speed rpm : 150  
CRT mm min. : > 9.00

**Testing:**

Rated speed rpm : 250  
rack travel mm : 7.70  
Tolerance mm : ± 0.10

Rated speed rpm : 350

---

**TORQUE CONTROL**

Rated speed rpm : 700  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm : ± 0.10

**MEASUREMENT**

Rated speed rpm : 500  
Pressure hPa : 200  
rack travel mm : 10.30  
Tolerance mm : ± 0.10

Pressure hPa : 1090  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

---

**FUEL DELIVERY CHARACTERISTICS**

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

**LOW IDLE**

Rated speed rpm : 250  
Rack travel in mm : 7.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
ca3/1000s. : ± 5.0  
Spreed  
Tolerance  
ca3/1000 strokes : 7.0  
Check tolerance  
ca3/1000s. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 646 658  
Injection pump  
Pump designation : PE6F130A720RS7371  
EP type number : 0 412 636 837  
Governor  
Governor design. : RQV250...900PA1215  
Governor no. : 0 421 814 139  
Cust. part No. : 3825482-P04 V.11/95

Customer-spec. information  
Customer : PENTA  
Motor : TAMD 163 A  
Power KW : 405.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Vibration damper (RoBo diaphragm) : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 077  
Inlet press. bar : 1.5  
Tolerance bar : + 0.1  
Overflow quantity min. l/h : 60  
Tolerance l/h : + 10.0  
Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 3.70  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10  
Rack travel in mm : 7.60  
Tolerance mm : + 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75  
Start of delivery mark  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

---

Rack travel in mm : 13.20  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 377.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 250

Rack travel in mm : 5.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 959  
guide sleeve  
travel mm : 8.22  
Tolerance mm : + 0.25

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.12  
Tolerance mm : + 0.25

Rated speed rpm : 315

M12

guide sleeve  
travel mm : 1.98  
Tolerance mm : + 0.25

Rated speed rpm : 365  
guide sleeve  
travel mm : 2.47  
Tolerance mm : + 0.25

Rated speed rpm : 650  
guide sleeve  
travel mm : 4.40  
Tolerance mm : + 0.25

Rated speed rpm : 1160  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1030

Rack travel in mm : 11.00  
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 377.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree : + 4.0

control lever  
position degree : 118.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 12.20  
Rated speed rpm : 930  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1010  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1100

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.50

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.20  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 13.20  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500

M13

Pressure hPa : 1500  
rack travel mm : 13.20  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.60  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1000  
rack travel mm : 5.10  
Tolerance mm : + 0.20

Pressure hPa : 240  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 409.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0

---

#### LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.98  
Test oil : ISO 4113

Combination No. : 0 402 646 962

Injection pump  
Pump designation : PE6P130A720RS7137  
EP type number : 0 412 636 806

Governor  
Governor design. : RQ750PA865-2  
Governor no. : 0 421 801 619

Cust. part No. : 864855-P04 v.10.94

Customer-spec. information  
Customer : PENTA  
Motor : TWD1620G

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper  
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde assembly : 1 688 901 019

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 12.25  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 368.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.5
Check tolerance cm <sup>3</sup> /1000S.	: ± 5.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

Rack travel in mm	: 3.90
Tolerance mm	: ± 0.20
Del. quantity cm <sup>3</sup> /1000 strokes	: 30.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 5.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 368.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.5
Check tolerance cm <sup>3</sup> /1000S.	: ± 5.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 90.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.20
Rated speed rpm	: 751
Tolerance 1/min	: ± 3

rack travel mm	: 4.00
Rated speed rpm	: 781
Tolerance 1/min	: ± 7

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 850

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 748
rack travel mm	: 11.20

Rated speed rpm	: 779
Tolerance 1/min	: ± 5
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 850

Rated speed rpm	: 749
rack travel mm	: 11.20

Rated speed rpm	: 780
Tolerance 1/min	: ± 5
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 850

Rated speed rpm	: 750
rack travel mm	: 11.20

Rated speed rpm	: 781
Tolerance 1/min	: ± 5
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 850

Rated speed rpm	: 751
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rack travel mm : 11.20

Rated speed rpm : 782  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 850

Rated speed rpm : 752  
rack travel mm : 11.20

Rated speed rpm : 783  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 850

Rated speed rpm : 753  
rack travel mm : 11.20

Rated speed rpm : 784  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 850

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 676 821  
  
Injection pump  
Pump designation : PE6P120A320LS7854  
EP type number : 0 412 626 872  
  
Governor  
Governor design. : RSV550...1050POA826  
: -9  
Governor no. : 0 421 833 459  
  
Cust. part No. : 0250746302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 441 LA  
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 115  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
  
Firing order : 6- 3- 5- 2- 4-  
: 1  
  
Phasing : 0-60-120-180-240  
: -300  
  
Start of delivery mark  
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030  
  
Rack travel in mm : 13.60  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 3.90  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1075  
rack travel mm : 12.60

Rated speed rpm : 1115  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1076  
rack travel mm : 12.60

Rated speed rpm : 1116  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1077  
rack travel mm : 12.60

Rated speed rpm : 1117  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1078  
rack travel mm : 12.60

Rated speed rpm : 1118  
Tolerance 1/min : + 4

rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1079  
rack travel mm : 12.60

Rated speed rpm : 1119  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

rack travel mm : 12.60

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

---

#### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 550  
rack travel mm : 3.90  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 565  
Tolerance 1/min : + 20

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 13.60  
Tolerance mm : + 0.05

Rated speed rpm : 970  
rack travel mm : 13.90  
Tolerance mm : + 0.10

Rated speed rpm : 750  
rack travel mm : 14.20  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
rack travel mm : 14.20  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 244.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 3.90  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spread

Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000s. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.02.98  
Test oil : ISO 4113

Combination No. : 0 402 736 858

Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0 412 716 805

Governor  
Governor design. : RQV350...1200PA964  
: -28K  
Governor no. : 0 421 815 428

Cust. part No. : 3282464

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTA-A  
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 5.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200



Rack travel in mm : 12.35  
 Tolerance mm : + 0.05  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 148.5  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  


---

 Speed  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  


---

Rated speed rpm : 350  
  
 Rack travel in mm : 5.50  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 30.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 5.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200  
 guide sleeve  
 travel mm : 9.10  
 Tolerance mm : + 0.10  
  
 Rated speed rpm : 350  
 guide sleeve  
 travel mm : 1.80  
 Tolerance mm : + 0.20  
  
 Rated speed rpm : 450  
 guide sleeve  
 travel mm : 3.30  
 Tolerance mm : + 0.20

Rated speed rpm : 700  
 guide sleeve  
 travel mm : 6.10  
 Tolerance mm : + 0.20  
  
 Rated speed rpm : 1400  
 guide sleeve  
 travel mm : 10.90  
 Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1330  
  
 Rack travel in mm : 16.50  
 Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 148.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 64.0  
 tolerance degree : + 4.0  
  
 control lever  
 position degree : 119.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.30  
 Rated speed rpm : 1245  
 Tolerance 1/min : + 5  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1385  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

control lever  
position degree : 15.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 7.20

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm : ± 0.10

Rated speed rpm : 423

---

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

Rated speed rpm : 650  
rack travel mm : 11.10  
Tolerance mm : ± 0.20

Rated speed rpm : 550  
rack travel mm : 11.00  
Tolerance mm : ± 0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1200  
Pressure hPa : 1200  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

Rated speed rpm : 1200

M24

Pressure hPa : -  
rack travel mm : 7.90  
Tolerance mm : ± 0.20

#### MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 575  
rack travel mm : 11.40  
Tolerance mm : ± 0.20

Pressure hPa : 225  
rack travel mm : 8.95  
Tolerance mm : ± 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 290

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 11.00  
Tolerance mm : ± 0.20

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113

Combination No. : 0 402 746 609A

Injection pump  
Pump designation : PES6P130A720RS7411  
EP type number : 0 412 736 838

Governor  
Governor design. : RQ275/950PA1274  
Governor no. : 0 421 801 807

Cust. part No. : 221 574

Customer-spec. information  
Customer : RAEA  
Motor : UTL u. TLL206E2  
Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 160  
Tolerance L/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.60  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 246.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.20  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1103  
guide sleeve  
travel mm : 6.55  
Tolerance mm : ± 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.06  
Tolerance mm : ± 0.20

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 355

guide sleeve  
travel mm : 4.25  
Tolerance mm : ± 0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1147

Rack travel in mm : 11.60  
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 246.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 33.0  
tolerance degree : ± 4.0

control lever  
position degree : 94.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.60  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1180  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

control lever  
position degree : 11.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. : > 7.22

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 346  
Tolerance 1/min : ± 20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

Rated speed rpm : 1050  
rack travel mm : 12.60  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.20

M28

Tolerance mm : ± 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 260  
rack travel mm : 9.20  
Tolerance mm : ± 0.15

Pressure hPa : 440  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

---

#### Start interlock

Rated speed rpm : < 100  
Rated speed rpm : > 195

Check  
speed 1/min : < 80  
Check  
speed 1/min : > 215

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 24.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 4.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 637  
  
Injection pump  
Pump designation : PES6P120A320RS7449  
EP type number : 0 412 726 974  
  
Governor  
Governor design. : RQ275/1050PA1372  
Governor no. : 0 421 801 830  
  
Cust. part No. : CCEP 5169- 66/253

---

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MI7R062045 B41  
Power KW : 186.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 2 417 413 078  
  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
  
Overflow quantity  
min. l/h : 320  
Tolerance l/h : + 20.0  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

NO2

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 4.70  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 20.25  
Tolerance mm : + 0.75  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Start of delivery mark  
  
°NW after s.o.d. : -1.45  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 1

---

## CRT ZERO POSITION

Rack travel in mm : 12.50  
Tolerance mm : + 0.05



---

**BASIC SETTING**

Rated speed rpm : 600

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

**Spread**Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275Rack travel in mm : -6.80  
Tolerance mm : ± 0.10Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0**Spread**Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

**(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR**

---

**GUIDE SLEEVE TRAVEL**Rated speed rpm : 1129  
guide sleeve  
travel mm : 6.37  
Tolerance mm : ± 0.15Rated speed rpm : 275  
guide sleeve  
travel mm : 1.52  
Tolerance mm : ± 0.20

Rated speed rpm : 1050

guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10Rated speed rpm : 388  
guide sleeve  
travel mm : 4.42  
Tolerance mm : ± 0.10Rated speed rpm : 480  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10Rated speed rpm : 1330  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

---

**GUIDE SLEEVE POSITION**control lever  
position degree : 109  
Rated speed rpm : 600Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

**FULL LOAD DELIVERY AT FULL LOAD STOP**Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

**CONTROL LEVER**control lever  
position degree : 274.0  
tolerance degree : ± 4.0RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1120  
Tolerance 1/min : ± 5

rack travel mm : -8.50  
Rated speed rpm : 1235  
Tolerance 1/min : + 15

rack travel mm : -12.00  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 252.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. : > -5.00

#### Testing:

Rated speed rpm : 275  
rack travel mm : -6.80  
Tolerance mm : + 0.10

rack travel mm : -10.50  
Rated speed rpm : 375  
Tolerance 1/min : + 20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
  
Rated speed rpm : 1050  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -2.00  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500

NO4

Pressure hPa : 320  
rack travel mm : -0.85  
Tolerance mm : + 0.15

Pressure hPa : 160  
rack travel mm : -1.70  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 195

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -6.80  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.02.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 639  
  
Injection pump  
Pump designation : PES6P120A32ORS7359  
: -3  
EP type number : 0 412 726 975  
  
Governor  
Governor design. : RQ275/1050PA1217-2  
Governor no. : 0 421 801 832  
  
Cust. part No. : CCEP 5172 66-255

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDRO62045 J41  
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 078  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 270  
Tolerance l/h : ± 20.0  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

ND6

Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 20.25  
Tolerance mm : ± 0.75  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
  
°NW after s.o.d. : -0.45  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.40

Tolerance mm : ± 0.05

---

BASIC SETTING

Rated speed rpm : 600

Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1129  
guide sleeve  
travel mm : 6.36  
Tolerance mm : ± 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.52  
Tolerance mm : ± 0.20

N07

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
guide sleeve  
travel mm : 4.82  
Tolerance mm : ± 0.10

Rated speed rpm : 480  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1330  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 278.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : -1.00

Rated speed rpm : 1115  
Tolerance 1/min : + 15  
  
rack travel mm : -9.40  
Rated speed rpm : 1240  
Tolerance 1/min : + 15  
  
rack travel mm : -12.90  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 256.0  
tolerance degree : + 4.0  
  
Setting point w/out bumper spring  
  
Rated speed rpm : 175  
CRT mm min. : > -5.30

#### Testing:

Rated speed rpm : 275  
rack travel mm : -7.50  
Tolerance mm : + 0.10  
  
rack travel mm : -11.40  
Rated speed rpm : 375  
Tolerance 1/min : + 20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
Tolerance mm : + 0.05  
  
Rated speed rpm : 1050  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -2.85  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 520  
rack travel mm : -0.60  
Tolerance mm : + 0.15  
  
Pressure hPa : 240  
rack travel mm : -2.20  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 195  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 293.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -7.50

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.02.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 655  
Injection pump  
Pump designation : PES6P120A320RS7343  
EP type number : 0 412 726 915  
Governor  
Governor design. : RQV300...1000PA1160  
                  : -1K  
Governor no. : 0 421 815 559  
Cust. part No. : 5168 66-250

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 062356 B41  
Power KW : 288.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 071  
Inlet press. bar : 2.5  
Test nozzle holder assembly : 1 688 901 105  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

N10

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 11.00  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75  
Start of delivery mark  
°NW after s.o.d. : -0.40  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75  
Barrel no. : 1  
Beginning of delivery difference  
betw. rack trav. mm : 21.00  
and maximum rack travel : 11.00  
Difference °CS : 2.25

CRT ZERO POSITION



Rack travel in mm : 13.00  
Tolerance mm : +- 0.05

---

BASIC SETTING

Rated speed rpm : 1000

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 356.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -7.90  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1113  
guide sleeve  
travel mm : 8.82  
Tolerance mm : +- 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29

Tolerance mm : +- 0.20

Rated speed rpm : 827  
guide sleeve  
travel mm : 5.96  
Tolerance mm : +- 0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.66  
Tolerance mm : +- 0.25

Rated speed rpm : 1440  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1275

Rack travel in mm : 12.00  
Tolerance mm : +- 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 356.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1100  
Tolerance 1/min : +- 5

rack travel mm : -9.00

Rated speed rpm : 1225  
Tolerance 1/min : + 15  
  
rack travel mm : -12.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 252.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
  
CRT mm min. : > -6.90

Testing:

Rated speed rpm : 300  
rack travel mm : -7.90  
Tolerance mm : + 0.10

Rated speed rpm : 390

---

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600  
rack travel mm : -0.65  
Tolerance mm : + 0.15

Rated speed rpm : 800  
rack travel mm : 0.10  
Tolerance mm : + 0.15

Rated speed rpm : 350  
rack travel mm : -1.75  
Tolerance mm : + 0.30

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1000  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -4.00

Tolerance mm : + 0.30

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 320  
rack travel mm : -2.90  
Tolerance mm : + 0.15

Pressure hPa : 520  
rack travel mm : -1.80  
Tolerance mm : + 0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 225

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 245

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 381.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

rack travel mm : 0.10  
Tolerance mm : + 0.15

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25

Tolerance mm : ± 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : -7.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.02.98  
Test oil : ISO 4113

Combination No. : 0 402 846 076

Injection pump  
Pump designation : PE6P120A320RS8043  
EP type number : 0 412 826 035

Governor  
Governor design. : RQV300...1100PA1248  
Governor no. : 0 421 814 165

Cust. part No. : 11031330  
: -P03 v.12.97

Customer-spec. information  
Customer : VCE  
Motor : TD 103 KBE  
Power KW : 216.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 12.40  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 330

Rack travel in mm : 4.00  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1140  
guide sleeve  
travel mm : 7.71  
Tolerance mm : + 0.15

Rated speed rpm : 330  
guide sleeve  
travel mm : 2.10

N15

Tolerance mm : + 0.20

Rated speed rpm : 1080  
guide sleeve  
travel mm : 6.80  
Tolerance mm : + 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1240

Rack travel in mm : 11.30  
Tolerance mm : + 1.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : + 4.0

control lever  
position degree : 115.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.40

Rated speed rpm : 1130  
Tolerance 1/min : + 5  
  
rack travel mm : 4.00  
Rated speed rpm : 1220  
Tolerance 1/min : + 15  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1275

---

LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

control lever  
position degree : 14.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 230

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 330  
rack travel mm : 4.00  
Tolerance mm : + 0.10

Rated speed rpm : 400

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.40  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.40  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.70

N16

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550  
rack travel mm : 2.20  
Tolerance mm : + 0.20

Pressure hPa : 230  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

LOW IDLE

Rated speed rpm : 330

Rack travel in mm : 4.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.05.96  
Test oil : ISO 4113  
Combination No. : 0 403 446 302  
Injection pump  
Pump designation : PES6MW100/720RS1131.  
EP type number : 0 413 406 123  
Governor  
Governor design. : RQV300...1300MW50  
: -24  
Governor no. : 0 420 083 270  
Cust. part No. : 0220745202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366 A  
Power KW : 121.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 715 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : +- 1.0  
Prestroke mm : 3.75  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 10.95  
Tolerance mm : +- 0.05  
Del. quantity  
cm3/1000 strokes : 89.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 300

Rack travel in mm : 6.40  
 Tolerance mm : + 0.10

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1354  
 guide sleeve  
 travel mm : 8.64  
 Tolerance mm : + 0.15

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.37  
 Tolerance mm : + 0.20

Rated speed rpm : 885  
 guide sleeve  
 travel mm : 5.01  
 Tolerance mm : + 0.25

Rated speed rpm : 490  
 guide sleeve  
 travel mm : 2.86  
 Tolerance mm : + 0.25

Rated speed rpm : 1610  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : 113  
 Rated speed rpm : 1370

Rack travel in mm : 10.00  
 Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 89.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

CONTROL LEVER

control lever  
 position degree : 112.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.95  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1440  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1500

LOW IDLE

control lever  
 position degree : 79.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200



CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300  
rack travel mm : 6.40  
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 10.95  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 11.55  
Tolerance mm : ± 0.05

Rated speed rpm : 1100  
rack travel mm : 11.20  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -  
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 300  
rack travel mm : 1.35  
Tolerance mm : ± 0.15

Pressure hPa : 200  
rack travel mm : 0.55  
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check speed 1/min : > 80

Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

rack travel mm : 11.20  
Tolerance mm : ± 0.10

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.40  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : † 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : † 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.01.97  
Test oil : ISO 4113  
Combination No. : 9 400 087 498  
Injection pump  
Pump designation : PES6P120A120RS3344  
EP type number : 9 400 087 090  
Governor  
Governor design. : RQV350...1100PA1216  
Governor no. : 9 420 080 380  
Cust. part No. : 3355978

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTAA - 250  
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 076  
Inlet press. bar : 3.0  
Test nozzle holder assembly : 1 688 901 019  
Opening pressure bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.15  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 15.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : + 0.10  
Check tolerance °NW : + 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : 6.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 44.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 650  
guide sleeve  
travel mm : 5.55  
Tolerance mm : + 0.25

Rated speed rpm : 1150  
guide sleeve  
travel mm : 8.40  
Tolerance mm : + 0.10

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.55  
Tolerance mm : + 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 4.05

Tolerance mm : + 0.25

Rated speed rpm : 1400  
guide sleeve  
travel mm : 10.55  
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree : + 4.0

control lever  
position degree : 117.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.50  
Rated speed rpm : 1155  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1350  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

---

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : ± 4.0

control lever  
position degree : 14.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.50

Testing:

Rated speed rpm : 325  
rack travel mm : 6.40  
Tolerance mm : ± 0.10

Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 680  
rack travel mm : 0.85

N23

Tolerance mm : ± 0.15

Pressure hPa : 530  
rack travel mm : 0.30  
Tolerance mm : ± 0.10

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 255

Check  
speed 1/mir. : > 80  
Check  
speed 1/min : < 275

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : ± 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 44.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet